

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

Aeroplane Accidents and Questions in the House.

We have no desire to alienate the sympathies of those Members of Parliament who are anxious and willing to fight for the cause of aviation, and to keep its importance prominently before his Majesty's ministers. At the same time, we cannot help feeling that an unwitting disservice is sometimes performed out of mistaken enthusiasm. An instance in point is the tone of the questions recently asked in Parliament about the two very regrettable accidents that lately took place in the Royal Flying Corps.

The Accidents Investigation Committee of the Royal Aero Club has already issued its report on one of those accidents, and its report on the second thereof appears this week. It will be remembered that the essential points in the report on the accident to Lieut. Rogers Harrison was that the aeroplane—the Cody which won the first prize in the Military Trials—had been purchased without further test, that in the opinion of the Committee it failed through top pressure on the elevator, which that member was not designed to withstand, and that the general condition of the aircraft indicated that it had structurally deteriorated since the time it was originally built.

In the case of the accident to Lieut. Desmond Arthur,

who was killed while flying a BE biplane at Montrose, the Committee has found that the accident originated in a faulty joint that was made, at some unknown time and by some unknown person, to one of the rear wing spars of the upper plane. The opinion of the Committee in respect to this joint is that it was so extremely badly done that it could not possibly be regarded as the conscientious work of an experienced workman; than this it would be impossible to say anything more condemnatory of the man who did it, and, unknown though he is, we cannot but believe that his present state of mind must be a very severe punishment for his culpable action in either scamping work that he could have done properly, or in attempting a vital job in ignorance of how it should properly be done.

Now both these reports are extremely severe; but the purpose and the spirit of the Accidents Investigation Committee is to be preventative rather than censorious. Its object is to get to the bottom of the accidents that take place, and its members spare no time nor the Aero Club money on the thorough performance of their work. Those who read the Committee's reports and dwell unduly upon the adverse criticism that is sometimes of necessity involved in a frank opinion on the facts, do an injustice both to those who receive and those who make the criticism. Further, if this aspect of the situation is unduly enlarged upon in public, they do a great injustice to the cause of aviation as a whole.

In these early days of aviation, very few people know anything at all about the subject, and those few who really do know anything are extremely diffident about regarding any of their knowledge as established fact. Accidents are to be expected, and while everyone most sincerely regrets that the consequences should be so heartrending, as often they unfortunately are, nevertheless, it is surely impossible to expect that any system could yet have been evolved capable of automatically eliminating even those mishaps that are seen to have been fundamentally unnecessary after they have been investigated.

Very shortly, the system of the Royal Flying Corps will, as a matter of course, eliminate by automatic safeguards of *régime*, any unnecessary sacrifice of life, just as, for example, it has similarly been eliminated from the work of those who have to do with the laying of submarine mines. That, too, was an obviously dangerous occupation, and resulted in many unnecessary fatalities before a sufficiently complete *régime* could be established to prevent them with the success that it now does.

It is the same in the case of using aeroplanes. We say without hesitation that the *régime* under which Lieut. Arthur flew the ill-fated biplane at Montrose was more complete and contained more provisions for safeguarding his life than does that obtaining for the average civilian who takes up the art. There can perhaps never be anything quite equal to the personal attention of an expert owner for his own aeroplane, provided always that his keenness for taking precautions is undimmed by the familiarity that is so apt to breed contempt. All that any third party or organising force can do to stimulate carefulness is to build up a comprehensive and complete *régime*.

When and by whom the repair of the BE wing spar was done is at present a mystery and may conceivably for all time remain unknown. It is apparent from the report that it must have been a secret repair. Since the aircraft had been rebuilt it had never been sent to the Royal Aircraft Factory for overhaul, and there was apparently no record in the history sheet of the machine of the origin of the patch, which must certainly have been visible to the eye, on the right wing tip.

That this patch should have been unnoticed by whosoever flew the machine after it was made is extraordinary, that it should have found no record in the history sheet probably seems equally extraordinary to those who are unfamiliar with the circumstances under which the Royal Flying Corps has necessarily had to develop. This machine has had a fairly long life and has been flown by many different pilots in many different places. It has a history sheet, and had the repair been a straightforward one it would have been entered up in a straightforward manner. For reasons that no one knows anything about, the repair was not recorded, and as patches on wings are common enough it is not extraordinary that it should have failed to attract any comment later on.

The circumstances of this particularly unfortunate accident obviously disclose an hiatus in the system, but it may be taken for granted that it will at once be filled up by the responsible officers of the Corps. To criticise them, or to criticise the War Office, or anyone else in the matter, save only the unknown person who made the repair, and let his work go unnoted, is to be lacking in a sense of proportion. As we have said, the *régime* at present is already as complete as the minds of those concerned could devise, and the only comment that one can fairly make in the present instance is to express regret that the experience should have been purchased at such a high price, and to extend sympathy to those who have lost so much in consequence.

If anyone desires to ask a pertinent question in Parliament on the subject of accidents that have happened in

the Royal Flying Corps, we suggest that they should ask the Secretary for War whether he purposes to give effect to the essential points in the recommendations of the Accidents Investigation Committee. These two disasters have already called forth recommendations of a comprehensive and far-reaching character. That which accompanied the report on the accident to the Cody aeroplane recommended a critical examination of framework and fabric as a matter of course after any machine had been in existence for a considerable length of time, and irrespective of whether it had been much in use or not. The recommendation in the case of the accident to the BE argued the necessity for a system in which repairs are not only carried out under expert supervision, but are also subjected to expert and independent examination. Further, in addition to these safeguards, the Committee recommends that important repairs should be marked, so as to identify the responsible person, and so that the particulars of any repair can readily be found in the history sheet of the machine.

It is the more important to ask Colonel Seely whether he purposes to give effect to this recommendation, inasmuch as the expert independent investigation of repairs in particular calls for a more extensive staff than is apparently available for this purpose in the Flying Corps at present.

The system of independent inspection is in full operation in respect to the construction of the BE machines, the inspectors being sent out from the factory and being required to pass and stamp with a private mark every separate part of the construction. It is the same system as is rigorously enforced in respect to the work of the factory itself. Every rib in the wing of a machine is inspected and stamped with a private mark so that it can be identified, and the man who covers the wing with fabric is responsible for observing that every part has been thus marked. If a third party surreptitiously changed a rib, it would be observed and reported by the workman covering the plane, and his incentive for satisfying himself that the work has been inspected is that he has to assume the responsibility for having put the fabric upon a framework that was incomplete in this particular.

In the course of time, when all these detailed regulations have had the effect of reducing accidents to a minimum, and many of them no longer seem necessary, they begin to assume the colour and appearance of official red tape. It is now, however, that we have an opportunity of seeing some of that red tape in the making, and of appreciating its good purpose when it is properly and justly used.

THE ROYAL FLYING CORPS.

THE following appointment was announced in the *London Gazette* of the 13th inst. :—

R.F.C.—Military Wing.—*Special Reserve of Officers.*—Second Lieut. (on probation) Douglas G. Young resigns his commission. Dated June 14th, 1913.

Arthur Leslie Russell, to be Second Lieut. (on probation). Dated June 14th, 1913.

The following appointment was announced by the Admiralty on the 13th inst. :—

D. A. Oliver, to the "Hermes," additional, as Flying Officer for Cromarty Air Station.

The next F.A.I. Congress.

THE Annual Congress of the Federation Aeronautique Internationale, is to be held this year in Holland, at Scheveningen, on July 31, and Aug. 1 and 2.

New British Height Records.

WHEN most people were simply sweltering with the heat on Monday, Mr. H. G. Hawker was shivering, but then he was engaged in making attacks on the British height records. The flights were made at Brooklands on a Sopwith tractor biplane, and in the first attempt, with one passenger, the height attained, subject to official verification, was 13,400 ft. which beats Mr. Hawker's own solo British record of 11,450 ft. The old record for pilot and passenger was Mr. de Havilland's 10,500 ft. In a subsequent trip with two passengers, Mr. Hawker took the machine up to an altitude of 10,800 ft. At 7,000 ft. up, Mr. Hawker said he was shivering and at 12,000 ft. he could scarcely move his limbs on account of the cold.

Another Naval Air Station.

CROMARTY is now the fifth naval air station to be established, and Squadron Commander Lieut. A. W. Longmore, R.N., has been appointed to its command, with Lieut. D. A. Oliver as Flying Officer. Cromarty is an important base of the First Fleet.

JUNE 21, 1913.

FLIGHT

MEN OF MOMENT IN THE WORLD OF FLIGHT.
British Pilots.



MR. GUSTAV HAMEL.

FLYING AT HENDON.

On Thursday of last week several exhibition and passenger flights were made in the afternoon and evening prior to the night flying demonstration. At 3 o'clock Louis Noel took up a passenger on the Grahame-White-Maurice Farman biplane, Pierre Verrier ascending soon after, also with a passenger, on the Aircraft-Maurice Farman. Later on Marcus D. Manton made a passenger flight on the Grahame-White biplane. M. Baumann was the next up on the 35 h.p. Anzani-Caudron biplane, flying high as usual; G. L. Temple also made a nice flight on his 35 h.p. Caudron. H. M. Brock and Jules Nardini were both out on Deperdussin monoplanes.

Marcus D. Manton then ascended on the 50 h.p. Grahame-White 'bus, after which E. Cheeseman took over the same machine. Noel went up at about the same time, and both pilots circled the aerodrome for some time; Cheeseman landed with a fine *vol plané*, which looked very effective in the dark. Preparations were then made for "blowing up" the battleship which had been erected at the far end of the aerodrome, looking very realistic with the search-lights playing on it. Manton, accompanied by Capt. Tyrer, and minus the C.A.V. accumulators used for illuminating the biplane, started off first. The machine not having any lights, it



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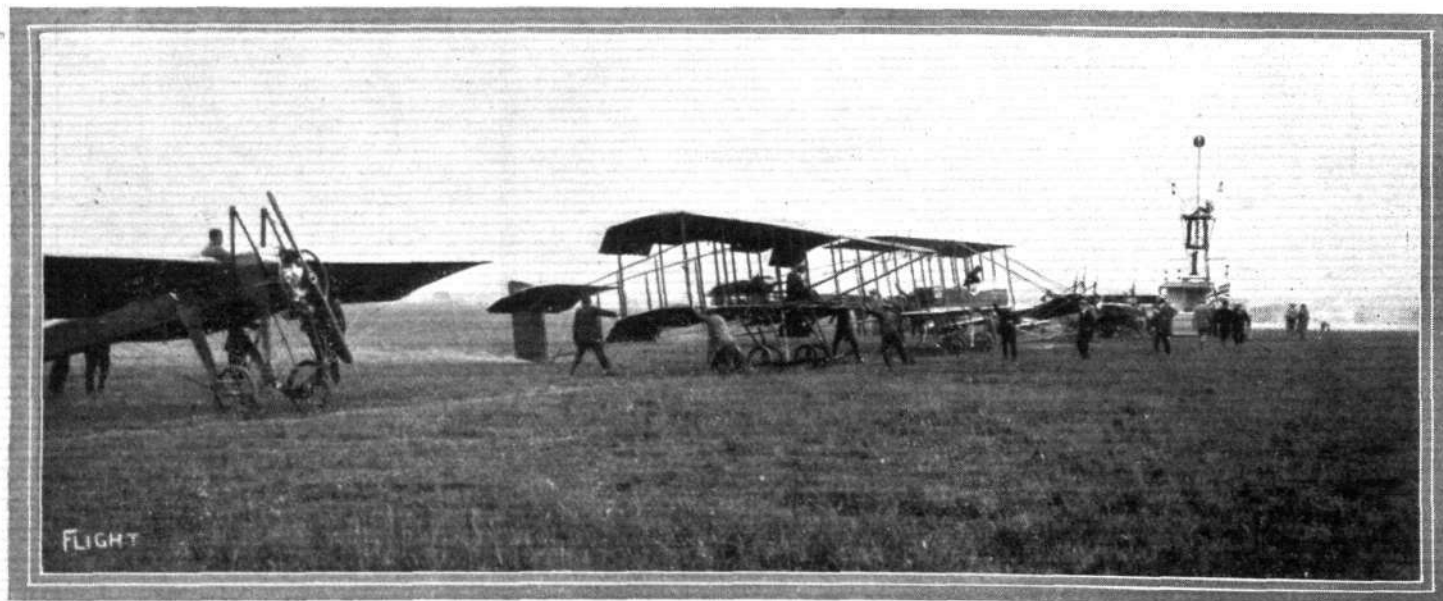
The Refreshment Pavilions at the London Aerodrome, Hendon, which have proved such a splendid boon to visitors to this popular resort. At the top left is the Shilling Enclosure Café, on the right the Sixpenny Enclosure Café, and below is the Half-Crown Enclosure Tea Pavilion.

A fine 30 min. flight, at a height of about 1,000 ft., was made by J. L. Hall on his 50 h.p. Blériot monoplane. At about 6 o'clock E. Cheeseman made a flight on the 50 h.p. Grahame-White biplane, and later R. T. Gates gave an exhibition flight. In the evening J. L. Hall went up again on his Blériot with Capt. Tyrer perched up behind him on the fuselage; they remained up for about 10 mins., making very creditable banks. After this, Claude Grahame-White went up in the Maurice Farman, Louis Noel going up in the same machine later on; G. L. Temple made two more flights, including some well-judged switchbacks, before returning the machine to its hangar. By this time it was getting quite dark, and the enclosures were all illuminated. Noel made the first demonstration on the Maurice Farman, decked out with tiny electric lamps, which he kept switching on and off. Nardini followed immediately after on his 50 h.p. Gnome-Deperdussin monoplane, also illuminated.

was very difficult to follow its movements, and it was only when over the battleship in the path of the search-lights that the biplane could be seen. Capt. Tyrer got in one bomb which burst just astern of the battleship, the second shot hit, but missfired. Manton then had great difficulty in keeping the machine up, so thought it wise to land, which he did in the bad part of the ground with the result that in taxiing the machine along the ground they hit a bump and smashed the chassis. In the meanwhile Noel and Nardini ascended on the Maurice Farman biplane and the Deperdussin monoplane respectively, and finished off the battleship. A fireworks display brought the night's entertainment to a conclusion.

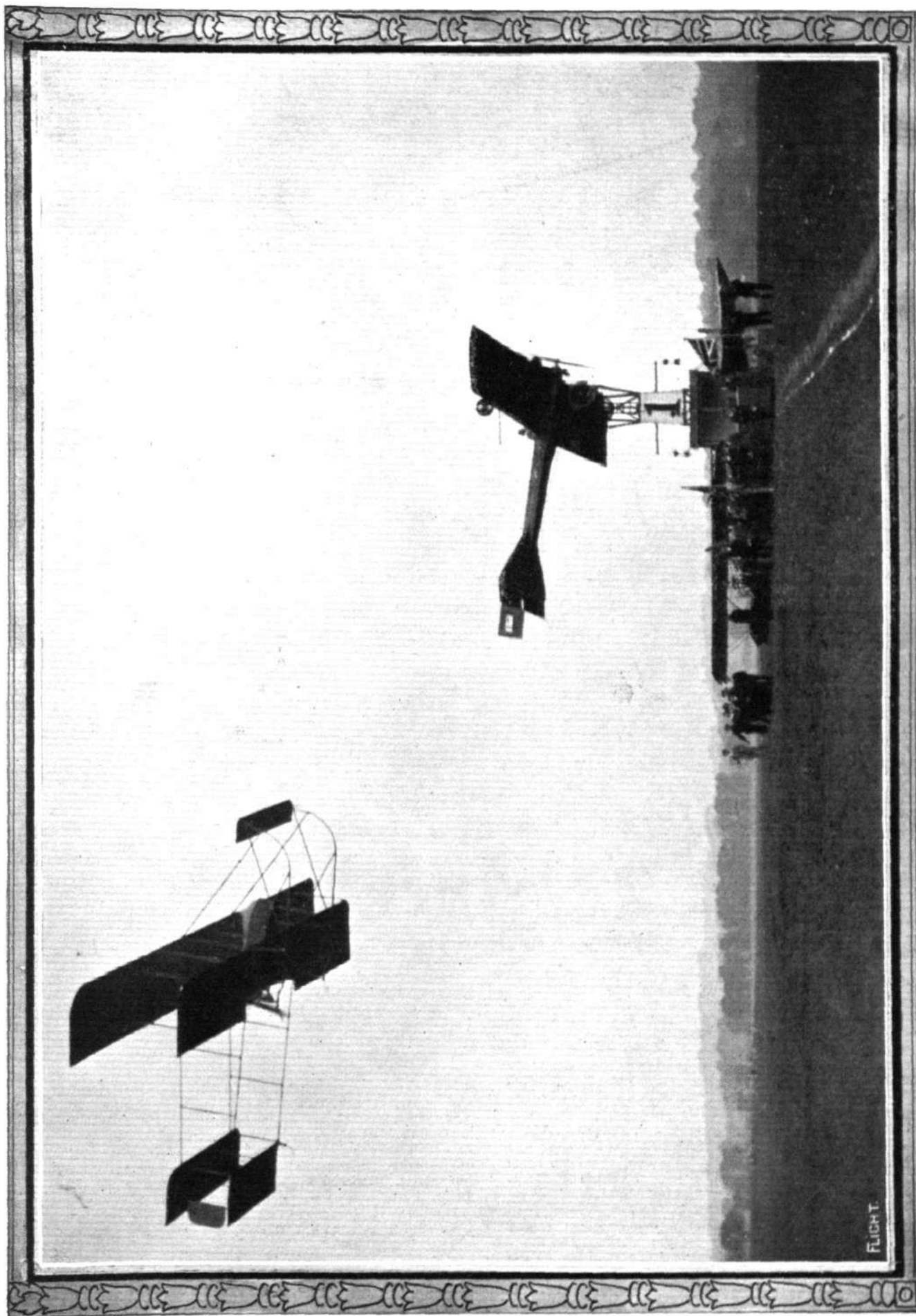
NORTH LONDON DAY MEETING.

On the Saturday following the first of a series of London meetings was held, this occasion being devoted to North London. The Lord



Start for the Cross-Country Race at Hendon on Saturday.

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A close finish for second place between Verrier and Nardini in last Saturday's speed handicap at Hendon Aerodrome. Nardini overtook and passed Verrier almost upon the finishing line.

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Mayor of London, the Mayors and Members of Parliament of North London were present, as well as several notabilities. Early in the afternoon an exciting incident occurred, resulting fortunately in nothing more serious than a smashed machine. Louis Noel ascended in the 70 h.p. Renault-Maurice Farman biplane to give an exhibition flight, and when at the far end of the aerodrome he got into a strong down current of air which caused the machine to drop almost to the ground. Noel was unable to get the biplane up again, and he only had time to switch off the engine before the tail struck the ground, bringing the biplane down on to the chassis with some considerable force. The result was that nearly everything except the nacelle, engine and the propeller was completely smashed. Noel himself was quite unhurt, although he was naturally shaken up. During the afternoon Marcel Desoutter was taken up by Verrier on the Maurice Farman biplane, this being his first aerial trip since his accident last Easter. The two events down on the programme, a cross-country handicap for the North London Cup, presented by Miss Trehawke Davies, and a speed handicap both provided good sport. Six started off in the cross-country handicap, which was flown over a new course—to Halcomb Hill and back, a distance of about fifteen miles, the competitors being well in view all the time. The first off was E. Cheeseman on the 50 h.p. Grahame-White biplane (9 min. 16 secs. start). He could not, however, get the machine to

three-fifths of a second. The following tables show the times for the two events:—

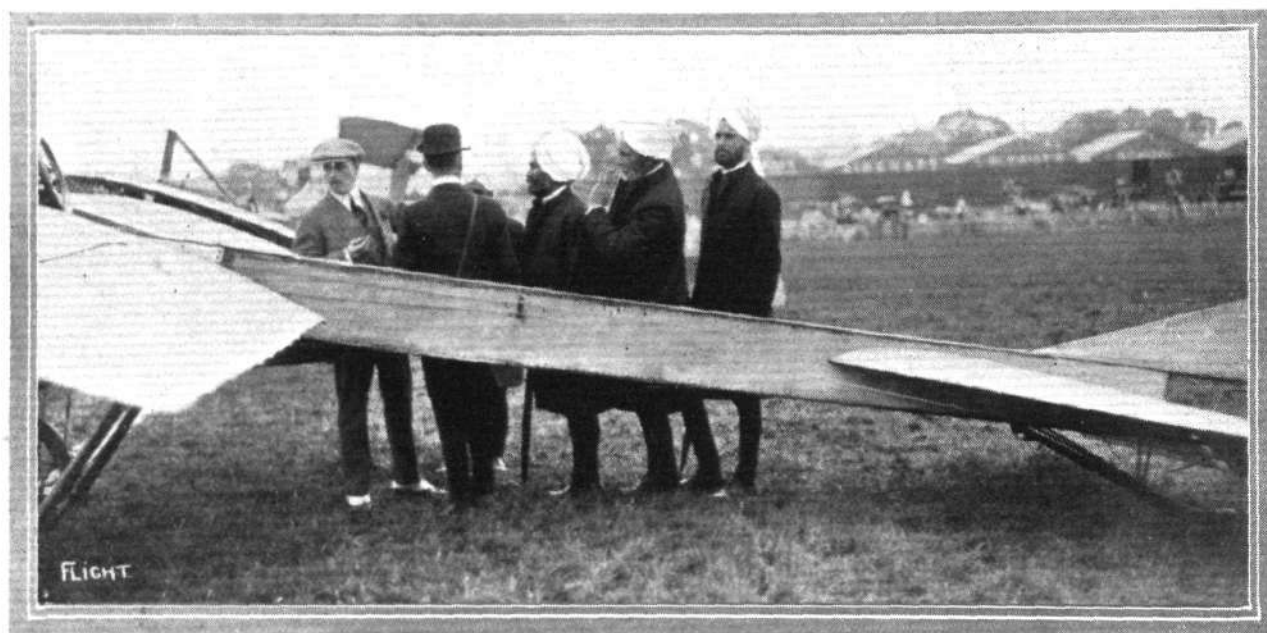
Cross-Country Handicap. Distance 15 miles.

	Start.	Handicap Time.
	m. s.	m. s.
1. P. Verrier (70 h.p. Maurice Farman) ...	2 40	26 38
2. J. Nardini (50 h.p. Deperdussin) ...	0 49	26 56
3. H. M. Brock (35 h.p. Deperdussin) ...	5 14	27 58
Lieut. Porte (100 h.p. Deperdussin) ...	scratch	
J. L. Hall (50 h.p. Blériot) ...	2 16	
E. Cheeseman (50 h.p. Grahame-White) ...	9 6	

Speed Handicap. 8 laps (12 miles).

1. H. M. Brock (35 h.p. Deperdussin) ...	2 37	14 51
2. J. Nardini (50 h.p. Deperdussin) ...	scratch	14 55
3. P. Verrier (70 h.p. Maurice Farman) ...	1 15	14 55½

Late in the evening some night flying demonstrations were given, similar to those which took place on Thursday week, previously described. Two of the machines had narrow escapes, one having to make a forced landing and the other nearly running into an obstacle in the dark. The demonstrations were given by Louis Noel and Marcus D. Manton on Grahame-White biplanes, and



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Capt. Tyrer explaining some points of the Deperdussin monoplane to the King's Indian Orderly Officers at Hendon.

rise high enough to clear the trees, so he made a circuit of the aerodrome, but without getting much higher. Eventually, when over the wrecked Maurice Farman, he experienced a down gust similar to that which brought the latter machine to grief. He was turning at the time, so the biplane started a healthy side-slip, and Cheeseman only just managed to flatten out, and hop over the fence of the aerodrome, landing amongst the trees on the other side. He made several attempts to get back, but was unable to do so. In the meanwhile the next competitor had started, namely, H. M. Brock, on the 35 h.p. Deperdussin monoplane (5 min. 14 secs. start). He was followed by P. Verrier on the 70 h.p. Maurice Farman biplane (2 min. 40 secs. start), J. L. Hall on the 50 h.p. Blériot monoplane (2 mins. 16 secs. start), Jules Nardini on the 50 h.p. Deperdussin monoplane (49 secs. start), and Lieut. Porte (scratch), accompanied by Capt. Massy, of the Indian Flying Corps, on the 100 h.p. Anzani-Deperdussin monoplane. The first man home was Verrier, with Lieut. Porte only a few yards behind. Then came Nardini, 18 secs. behind Porte and 62 secs. ahead of Brock. Hall, flying high, came in last. The latter and Lieut. Porte were disqualified for not rounding the mark correctly, so second place went to Nardini. The speed handicap was a single heat event, flown over eight laps of the course. The limit-man was H. M. Brock, on the 35 h.p. Deperdussin monoplane (2 mins. 37 secs. start). Verrier, on the 70 h.p. Maurice Farman, started second, with 1 min. 15 secs. start, and Jules Nardini was scratch, flying of course, his 50 h.p. Deperdussin. Brock kept ahead all the time and won by a good 4 secs., Nardini coming in next, only shooting under Verrier almost on the finishing line, by

Jules Nardini on a Deperdussin monoplane. The Willows airship also made its second appearance, and "diriged" amongst the aeroplanes. The battleship was again destroyed, after which the proceedings were brought to a close by a firework display.

The next day, Sunday, was a regular summer's day, the heat of the sun being somewhat alleviated by a pleasant breeze. There was a very large attendance, and some very good flying. Gustav Hamel, in starting for Brooklands on his new Blériot monoplane, had the bad luck to smash his propeller as he was getting off. His old machine was brought out, however, and he left for Brooklands at 3.30 p.m., returning to Hendon at 7 p.m. Verrier was busy all the afternoon making passenger flights on the Maurice Farman biplane, and Sydney Pickles made several exceptionally fine exhibitions on a new British-built 45 h.p. Caudron biplane. He made this splendid 'bus climb in a truly remarkable manner, and his spiral *vol planés* reminded one of a combination of Hamel and Chevillard. Numerous other flights were made by Baumann on the 35 h.p. Caudron biplane, H. M. Brock on the 35 h.p. Deperdussin monoplane, and Lieut. Porte and passenger on the 100 h.p. Anzani-Deperdussin monoplane. E. Cheeseman was out on the Grahame-White 'bus, and J. L. Hall flew his 50 h.p. Blériot.

HENDON NOTES.

THE programme for the Midsummer meeting which has been arranged for this (Saturday) afternoon follows the popular lines, and includes a cross-country handicap and a speed handicap, with the addition, of course, of the usual exhibition and passenger flights.

To-morrow will be Ascot Sunday at the aerodrome, and it is

expected that there will be a very smart gathering, reminiscent of the crowds at Boulter's Lock or the Church Parade in the Park. It is no secret that something special in the way of exhibition flights will be seen.

Wednesday next will be another special day, as a Fête of Flowers and Aviation has been arranged in aid of the Institut Français de Londres, on the occasion of the visit to this country of President Poincaré. A procession of decorated cars will leave the Marble Arch at 10.30 a.m., and they are due to arrive at Hendon about noon. In the afternoon there will be an aerial display, and the first battle of flowers by aeroplane. The decorated cars will be judged at the aerodrome, and there will be a parade subsequently.

After his trip with Verrier on Saturday last, Marcel Desoutter said that he had enjoyed the trip immensely, and felt quite at home in the air again, so we may look forward to seeing him at the "cloche" again before very long.

Mr. Dennis Ware, who, it will be remembered, qualified for his *brevet* in November last on a Deperdussin, is having a monoplane built to his own design. It will in all probability be fitted with one of the new 60 h.p. Isaacson engines. Here's wishing success to both.

Passenger flights are becoming very popular at Hendon, and although at present a by no means cheap form of amusement, it is patronised by all classes. Many celebrities, too, go up at Hendon. By way of instance, last Thursday week, Noel carried Capt. Skelton, the last survivor of the "Birkenhead" disaster, who, though advanced in years, thoroughly enjoyed the trip. Last Sunday, a party of the Territorial Tactical Association visited the aerodrome, and lots were drawn for two 2-guinea flights, which were much appreciated by the two successful aspirants.

The two Grahame-White school 'buses, which were but recently built, have already done quite a lot of useful work. They are similar to the old type Henry Farman biplanes, but have a monoplane tail, after the style of the latest type Farman. One is fitted with a 50 h.p. Gnome engine, whilst the other has a 60-80 h.p. 8-cyl. Burlat rotary engine. This engine has several interesting features. The eight cylinders are arranged in pairs, doubled opposed, the first and fourth pairs being at right angles to the second and third. The propeller is gear-driven from the revolving crank case. I hope later to have something more to say about this engine. VEE JAY.

BRITISH ARMY AND AVIATION.

In the debate on the Army Estimates in the House of Commons on Friday of last week, Sir Courtenay Warner said a matter to which he wished to call attention was the pay of the Royal Flying Corps. It was true it was higher than that of the Engineers, but, considering that every man who went up in a flying machine risked his life, he thought the Royal Flying Corps deserved very considerable extra pay, and that there should be special pensions and allowances for the widows and children of men who lost their lives in this service.

Mr. Amery asked for a satisfactory assurance from Col. Seely that the Flying Corps should be under the direction of the General Staff. The provision of money for the training of officers and men in aviation should not be confined only to the Regular Army in this country, but should also apply to the Regular troops stationed in other parts of the Empire, and also to the Territorial Force.

Mr. Harold Baker (Financial Secretary to the War Office), said that with regard to the Royal Flying Corps he did not agree that it should be directly under the General Staff. The pay of its members was not less than that of military aviators in France and Germany; indeed, he thought it was more. Everybody recognised the terrible risk to life run by those who served in the corps and the anxiety of the officers in responsible positions, but he doubted whether they could be compensated for by money, and he believed that the men who ran the risks liked doing so. At the same time the Secretary for War was considering the subject, and the Committee might feel assured that a very generous view would always be taken of the claims of the Royal Flying Corps.

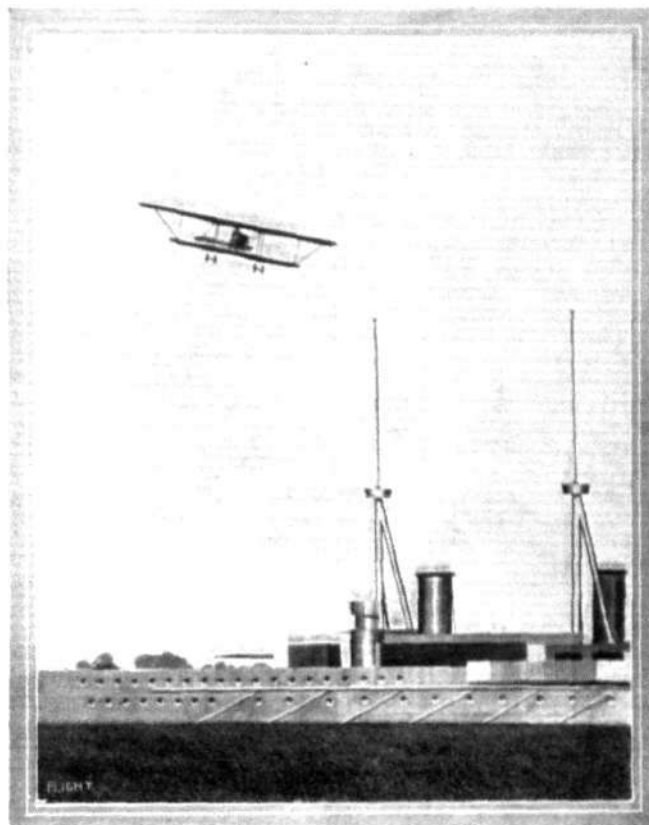
Questions in Parliament.

ON Monday, in the House of Commons, Sir J. D. Rees asked the Home Secretary whether he had prohibited the proposed Aerial Derby; and, if so, for what reason.

Mr. Ellis Griffith: The course for this race, which was not restricted to British subjects, was planned so that the competitors must pass over two of the most important prohibited areas scheduled by the Aerial Navigation Orders. After consulting the Admiralty

Flying at Brooklands.

AT the conclusion of the interesting motor racing programme to-day (Saturday), a cross-country aeroplane handicap will be decided, the entrants including: Mr. Hawker (Sopwith tractor biplane), Mr. Barnwell (Blériot monoplane), Mr. Knight (Vickers monoplane), Mr. Maurice Ducrocq (Farman biplane), Mr. Merriam and Mr.



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Mr. Sydney Pickles, on the British-built Caudron, over the "battleship" at Hendon.

and the War Office, my right hon. friend declined to give exemption in respect of these areas, and, under the orders, the Secretary of State has no authority to grant any exemption, except on the advice of these departments. If the race is organised so as not to pass over a prohibited area, no objection could be raised.

On Monday Capt. Faber asked the Secretary for War whether the responsibility for allowing the aeroplanes that lately led to the deaths of Lieuts. Harrison and Arthur being allowed to fly in their deteriorated condition rested upon the officer commanding the flying wing.

Col. Seely: I cannot admit that these aeroplanes were in a deteriorated condition, as stated in the question. As regards the first accident, the Cody aeroplane had recently been thoroughly overhauled, and returned as being in a safe condition for flying. As regards the second accident, the investigation of the question as to who was responsible for the condition of the wing tip which broke has not yet been completed.

Capt. Faber: Can the right hon. gentleman tell us, when it is completed, who was responsible?

Col. Seely replied that he would give the fullest information. He was afraid, however, from the enquiries they had made, that they would not be able to find out how the defect in the wing tip arose, or who was responsible.

Earl Winterton asked if the reports delivered to the right hon. gentleman in regard to these accidents were by competent persons, and, if so, if he would lay the reports on the table of the House.

Col. Seely: Most careful reports are furnished to me of every accident. I deprecate the suggestion contained in this and other questions that the officers responsible for seeing that the aeroplanes are in fit condition are not fulfilling their work well. All my information tends to show that our officers are doing their duty efficiently, and that our aeroplanes are probably in a better condition than those of any other nation.

Bendall (Bristol biplanes), Mr. Dukinfield Jones (Flanders biplane), Mr. Spencer (Spencer biplane). The two other Vickers machines (biplanes) will be flown by pupils who have recently passed their *brevet* tests in brilliant fashion—an excellent testimony of the proficiency of the pupils and the confidence reposed in them by their instructors.

THE ASTRA TORRES AIRSHIP.

THE first trial of the Astra Torres airship, which has been in process of construction in one of the sheds of the Military Wing of the R.F.C. because the Naval Wing, to which it will ultimately belong, has at present no suitable accommodation for it, was not altogether a success, but it would be absurd to make too much of any mishap to which any airship succumbed in an experimental flight. It is far from easy to bring any piece of machinery to a state of working perfection, and when the machine is an airship the problem is somewhat more difficult than usual. To have any apparatus work perfectly the first time after its erection is naturally claimed as meritorious by those concerned, but it is equally recognised by all who have any experience of similar undertakings that such success pertains almost as much to the nature of an "accident" as does a mishap. There is of course no longer any such excuse after the preliminary trials have once been held, and those responsible for the charge of the machine have become acquainted with all the details of its operation.

The Astra Torres at the time was still in the charge of the French company who are supplying the airship to the Navy, and whose mechanics have been responsible for its erection at Farnborough. From the photographs, it will be apparent that the envelope buckled downwards in the centre. The cause indicating the fault on this occasion may have been trivial and was certainly temporary, but the problem of preventing airship envelopes in general from buckling constitutes, one may say, the basic problem of airship design. The essential speciality of each constructor who has engaged upon airship manufacture resolves itself, to all intents and purposes, into some particular principle of attachment between the envelope and the car.

In an elementary airship, if the car is hung from the centre, the ends tends to rise. If the car is made longer and hung from the extremities of the envelope, they tend to sag. To avoid either of these extremes is not easy, because although it is simple enough to say that the load of the car must be distributed, the proper distribution is less readily accomplished.

A car that extends the full length of the airship envelope is larger than could reasonably be required for any useful purpose other than that of uniformly distributing the load. For this purpose, the rigid or semi-rigid type, in which the envelope is artificially strengthened by some form of independent engineering structure, offers greater economy of material.

Where the car is only made so large as is required for the accommodation of the engines, fuel and crew, to the amount that can be lifted by the gas vessel, it is invariably shorter than the envelope itself, and any attempt to distribute its weight along the envelope necessarily calls for the use of a number of wires that pull upon the envelope fabric at various degrees of obliquity. To adjust these tensions so that they may be resisted by the internal gas pressure of the envelope without any predisposition to buckling is a matter requiring considerable thought. Incidentally it is a problem that affords a fertile field for originality in design.

The Astra Torres is a case in point. It will be observed that the envelope is not cylindrical. It is variously described as being of trefoil section, or as resembling a bunch of three bananas. In section, each of these lobes forms a semicircle described upon a side of an equilateral triangle for its base. In actual fact, this equilateral triangle finds a material existence inside the envelope in the form of fabric.

Thus, the construction of the envelope comprises a fabric "girder" of triangular section with its apex inverted; around this are the three semi-cylindrical lobes. The interior fabric is porous; consequently the gas has the same free motion as in an undivided chamber.

We understand that a principal claim of the constructors in respect to the design is that the system permits of suitably distributing the load with proportionately less weight of material.

The fabric of the outer envelope is said to be appreciably lighter than would ordinarily be employed for the purpose, partly because it is not stressed by the attachments as much as would be the case if they were fastened to its exterior surface in the usual way, and partly because the bursting pressure to which they are subjected by the gas is reduced on account of their small diameter as compared with the diameter of a single cylindrical gas-vessel of equal capacity.

These arguments are interesting but scarcely conclusive in the absence of numerical data and comparative calculations. A feature of the Astra Torres design in this particular that is more apparently meritorious, however, is that a considerable amount of the rigging being inside the envelope instead of on its surface, is excluded from augmenting the air-resistance.

So much of the rigging as is outside is itself somewhat peculiar from the very nature and position of the attachment, but it is not

less interesting in respect to the arrangement of the wires at their points of attachment to the car.

There are various ways of causing an airship to ascend and descend, but that adopted by the designers of the Astra Torres is the travelling car system, in which the fore and aft trim of the ship is adjusted by means of mechanism that enables the car itself to be moved bodily to and fro beneath the envelope. To facilitate this movement, the cables are attached to the car by means of pulleys, and a set of them are connected to a roller chain that forms a kind of rack rail, along which the car can move or be held steady at any point as required.

A sprocket, forming part of the elevating gear under the pilot's control, engages with the chain. When the sprocket is rotated, the car is caused to move along the chain, and it is enabled to do so because all the other cables from which it is slung also pass fore and aft under pulleys.

In the patent, the Astra Co. calls its suspension "elliptic," for the reason that the free motion of any one pulley considered separately is an ellipse. The two points of attachment between its cable and the envelope are its foci.

The system may be visualised in an instant by recalling the geometry of the ellipse that was so popular at school, when one was permitted to describe the said curve by the aid of two pins and a piece of cotton. The two pins correspond to the points of attachment to the envelope. The piece of cotton is the cable supporting the car, and the pencil point that engages in a loop of the cotton to describe the ellipse, represents the pulley by which the cable is attached to the car of the Astra Torres airship.

A series of five such cords with pulleys constitutes, in principle, the external portion of the suspension of each side of the car from the envelope. The cords from the car, instead of diverging to the equator of the gas-vessel, as is usually the case, converge to the lowermost meridian. At each point where they meet the envelope they are attached to fastenings that pass through the envelope into the gas-vessel, which contains an internal system of radiating cords to distribute the load fore and aft to the upper corners of the interior triangle of fabric.

The car of the Astra Torres is a tubular steel structure between 50 and 60 ft. long and about 8 ft. broad. It is sheathed with aluminium plating. Its characteristic feature is its roominess, and although some of the members seem to be somewhat unnecessarily spread about, the general arrangement has at least the merit of accessibility.

The bows afford a large compartment with a wind screen in front, at such a height as to protect the "look-out." The second section comprises two decks, on the upper of which are the controls. Beneath are the fans for inflating the balloonettes, the water ballast bags and two guide ropes. The third compartment in the bows is for the engineers, and the fourth section contains the engines. Aft of the engines are the fuel tanks, disposed in two groups of three vertical cylinders, arranged on either side of a central gangway that runs between the engines into the engine control room.

A pair of 6-cylinder Chenu engines, each driving its own two-bladed propeller, comprise the lower plant. These engines have their cylinders cast in pairs, and in general design they follow standard automobile practice on a large scale.

They are supported on four quarter-elliptic leaf springs, placed transversely in pairs. Each pair virtually constitutes a semi-elliptic spring, but the attachment to the engine frame has a more rigid base by the method adopted. The ends of the springs rest on a system of links, so arranged as to tend to preserve the alignment of the shafts without interfering with the suspension.

On each engine, a single float chamber feeds jets in the twin induction-pipes, and a single high-tension magneto is connected to a single set of plugs. The cylinders are, of course, water-cooled, and the radiators are mounted in a similar relative position to the engine to what they would be on a motor car. Honeycomb radiators are employed, and each is cooled by a fan-induced draught that is quite independent of the speed of the machine through the air. The fans are driven by broad belts from pulleys situated immediately behind the flywheels.

Transmission from each engine to its propeller is effected through a Hele Shaw clutch and universal joint to a bevel gear box that also provides a reverse. An oblique shaft, supported by ball bearings in a derrick-like outrigger, transmits the power to another bevel gear and so to the propeller. The propellers do not swivel as they do on the airships constructed at the R.A.F., and the Astra Torres has not the advantage of utilising their thrust for the purpose of ascent and descent. By means of its reverse gear, however, it can use them to check the motion of the airship through the air. A brake mechanism is fitted to the propeller-shaft so that it may be brought to rest more quickly prior to reversing.

A cone clutch attached to each gear-box throws into action a shaft that drives the fan, the dynamo for electric light, and the elevating gear. The elevating gear can also be operated by hand from the bridge if the power mechanism fails.

The Astra Torres has a displacement in the order of $7\frac{1}{2}$ tons—that is to say, its gas capacity is about 7,500 cubic metres. It is of the non-rigid type, as has already been explained, and its pair of engines develop 200 h.p. each.

THE ACCIDENT TO THE ASTRA TORRES AIRSHIP.

By PTERODACTYL.

THE "Astra Torres" made its first public appearance on June 12th about 10.45 a.m. There was practically no wind.

The suspension of the car is by pulleys revolving on the suspensory cables, each of which is in the form of a loop. This permits the car to move backwards and forwards relatively to the envelope, and is the method employed for "planing" up and down.

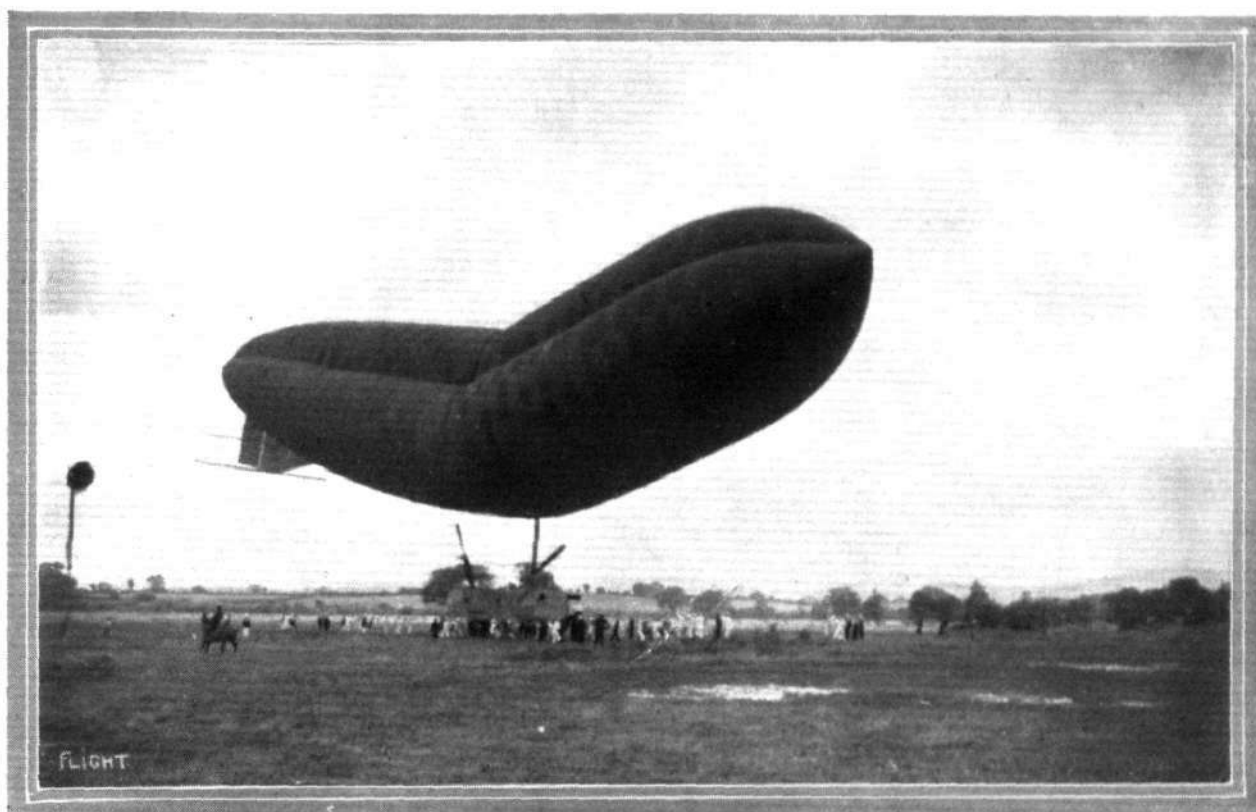
There are no movable horizontal planes. The fixed horizontal planes are in the form of a biplane, underneath the tail of the envelope.

The fixed vertical surface seemed small compared with the size of the ship.

It was difficult to see exactly how many passengers were on board, but apparently about 8 or 10 ascended. Among them were two naval and one military officer.

pointing to lack of blown power, and then the propellers were stopped and the airship slowly sank to the ground. The landing party, by doubling smartly, succeeded in catching the airship and checking the fall. The ship had then assumed an appalling shape, both ends of the envelope were turned up at most marked angles.

It took a quarter of an hour's steady blowing up the balloons with air to restore the pressure and bring the envelope back to its normal shape. A cursory examination showed that three cables at least had broken, and from the position of them, it looked as if they were those used in winding the car backwards and forwards. If this is so, it accounts for the propellers being stopped in mid-air, for it would be obviously unwise to work under power when the car was free to take up any position relatively to the envelope.



The new Army airship, the "Astra Torres," which has just been delivered from France at Aldershot, and had a slight mishap on its first test on June 12th. The photograph shows the dirigible just coming to earth after the gas-container had buckled in the centre through faulty pressure.

Adverse comment was passed on the airship's flat back from its first appearance. Undoubtedly the back was flat, and at times it was even kinked. This seems to point to faulty design in the suspensory arrangements.

The ship seemed to answer its rudder well, but it was impossible to tell whether the arrangements for rising and falling worked equally well. It was noticeable throughout the trial that one engine was running much slower than the other.

The airship ascended to about 2,000 ft., and when coming down seemed to get into difficulties. Its back became more kinked,



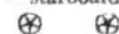
The "Beta" Visits London.

LONDONERS had a good view of the little airship "Beta" on Monday, when, after carrying out some manoeuvres at Windsor in connection with the review of the Household Cavalry, the airship sailed to the Metropoli, and passing above the river steered a course directly over the office of FLIGHT, in St. Martin's Lane, on her way to St. Paul's Cathedral, which she circled at ten minutes past two. She then went off in an easterly direction, and passed over Ilford about three o'clock. At half-past five she once more

It seems likely that the main fault was due to lack of blowing power, and doubtless steps will be taken to put this right at an early date.

The greatest credit is due to the pilot, Mons. Roussel, whose handling and "free descent" were managed in a quite masterly fashion.

The Naval handling party worked smartly, but some comment was caused by the officer commanding ordering the ship to be moved "towards me" instead of the "move to port" or "starboard" now invariably used by the military crews.



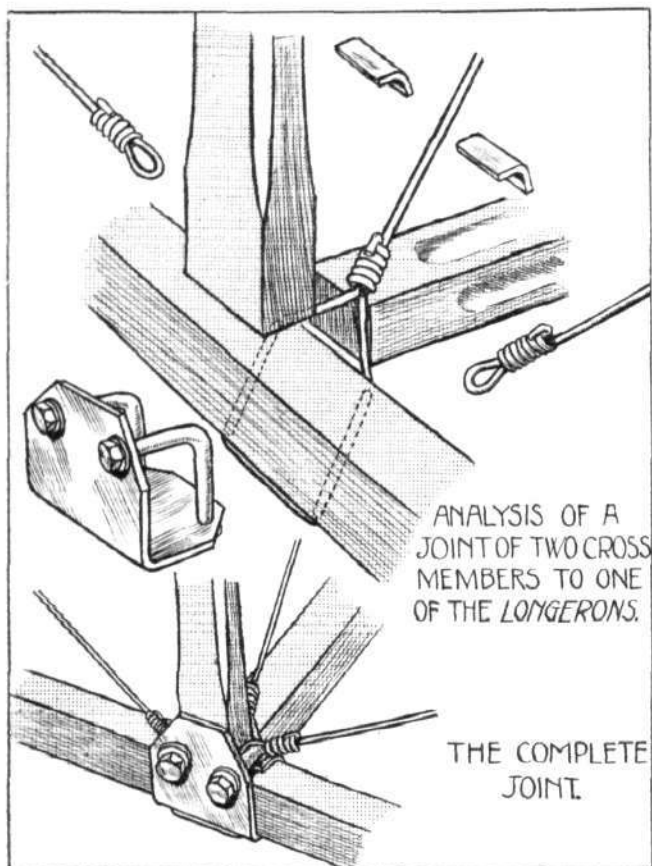
passed over the City, and then, via Putney, returned on her way to Farnborough. Major Maitland was in command, and the other occupants were Lieut. Hetherington and the Hon. C. Boyle.

Long Trip by "Delta."

AFTER a long period of retirement the Army airship "Delta" made a trial trip of four hours' duration on Tuesday last. With Major Maitland in charge, assisted by Capt. Waterlow, the airship cruised from Farnborough to Winchester and back.

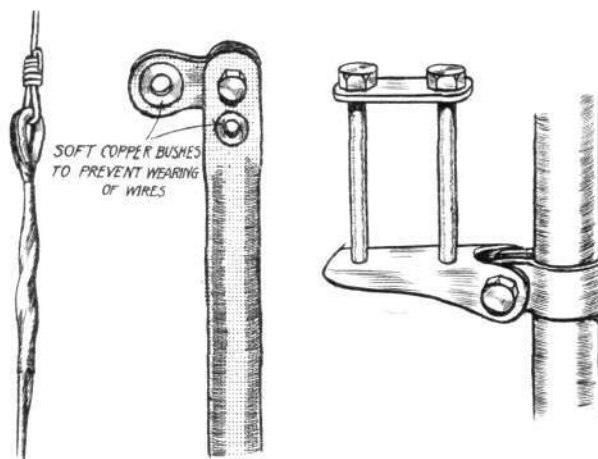
THE PARSONS BIPLANE.

QUITE apart from the interest attaching to this biplane from the fact that it is the machine on which the Parsons pendulum paddle-wheel stabilizer is going to be tried out, the Parsons biplane is in itself very interesting, as its designer and constructor, Mr. P. Muller, has managed to



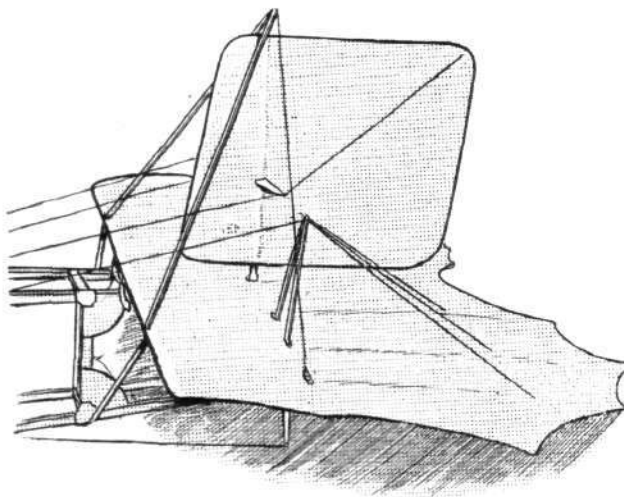
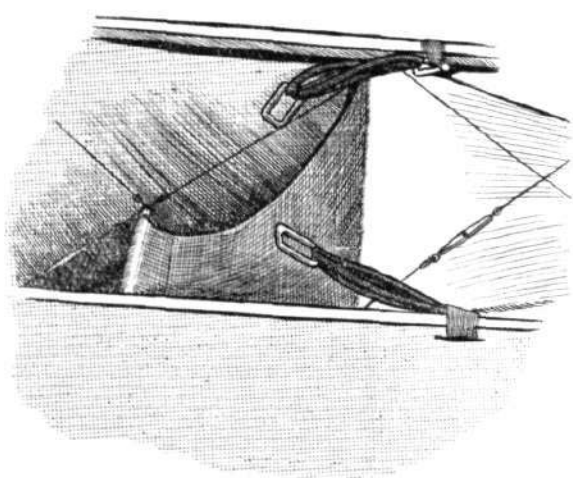
incorporate in it several new ideas. This, too, in spite of the fact that he was handicapped from the start by having to face the problem of designing a machine which could be flown with a 40 h.p. Aster car engine. To design an aeroplane that will fly with a proper aviation

that the machine is a biplane of the tractor type with a monoplane fuselage. Although the main planes resemble in their general appearance those of the Caudron biplane, with which our readers are familiar, they differ from that well-known design in several details. For instance, the planes are not warped for maintenance of lateral stability, this function being carried out by flexing the trailing edge of the outer part of the upper plane. From the rear spar to the trailing edge the ribs in that portion of the wing consist of



On the left is shown the method of securing the strands of a control cable by soldering a long copper ferrule round them. In the centre is the top of warp operating lever, showing how wire is protected against wear by copper bushes; and on the right a sketch of the attachment of warp operating lever to rear spar.

steel tape instead of the usual wood construction, the object being to obtain greater flexibility without the risk of breakage. Running parallel to the trailing edge, and some six inches in front of it, is another steel tape, to which are secured the wires by means of which the trailing edge is flexed. These wires are attached at their other end to a tubular lever pivoted on the rear spar and operated through stranded cables from the controls. In order to obtain greater efficiency the cord of the flexing portion of the wing is made slightly wider than that of

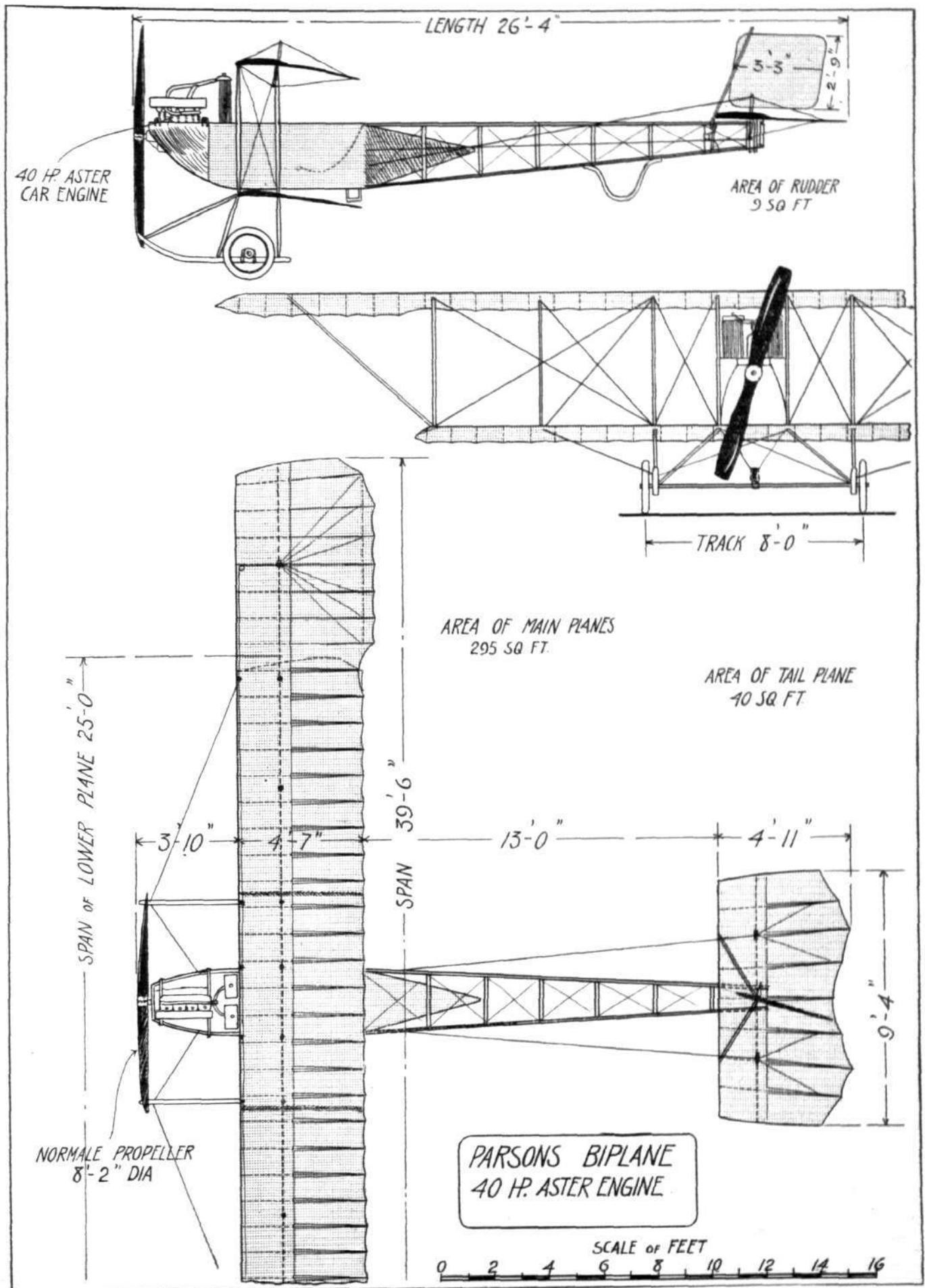


Pilot's seat of Parsons biplane, and on the right arrangement of tail planes.

motor is, perhaps, not such a difficult matter, but to have designed a machine that flies—and flies well—with a heavy car engine is no mean achievement.

From the accompanying scale drawings it will be seen

the rest of the wing. The main planes are built in three sections for ease of dismantling, and the fabric is laced together at the joints. In order to minimise stresses on the fabric the cords are passed through an aluminium



THE PARSONS BIPLANE.—Plan, front and side elevation to scale.

strip, instead of through eyelets in the fabric as is usually done, and the result is an extremely neat joint.

The *fuselage*, which is of rectangular section, is built up in the usual way, with ash *longerons* connected by struts and cross members of spruce, the whole being made rigid by diagonal cross-wiring. One of our sketches shows the very neat and inexpensive steel clip which forms the anchorage for these wires, and it will be seen that, with the exception of two small holes just large enough to accommodate one of the wires, the *longerons* are not pierced. With a view to obtaining greater rigidity against twisting strain, the *fuselage* does not taper to a knife's edge, but maintains its rectangular section to the rear end. Attached to the *fuselage* by four long bolts and four steel tubes is the tail plane, which is similar in construction to the main plane, the rear portion of it being flexed up and down for elevation and depression. Steering in a horizontal plane is effected by means of a rudder situated wholly on top of the tail plane, and pivoted on a steel tube approximately on its centre of pressure. One of the accompanying sketches will give a good idea of the arrangement of the tail planes.

A skid of malacca cane protects the tail from contact with the ground, whilst the chassis consists of two ash skids placed widely apart and connected to the lower main plane by six struts of English ash, the whole structure being made rigid by suitable cross-wiring. A single axle carrying two wheels is sprung from the skids by means of rubber shock-absorbers. To

prevent this axle from bending in a heavy landing, wires are carried from the centre of it to the lower plane. A rubber shock-absorber is introduced in the wires in order to take up any slack due to the upward travel of the axle. Mounted on transverse tubular bearers is the engine, which, as has already been said, is a 4-cyl. Aster car engine which has been slightly lightened for flying purposes. It is cooled by two radiators placed immediately behind it inside the *fuselage*. It drives a Normale propeller of 8 ft. 2 in. diameter, 4 ft. 2 in. pitch, at 1,100 r.p.m.

Petrol and oil are carried in a tank in front of the pilot's seat, which consists of a piece of canvas slung from two transverse steel tubes inside the cockpit. It will be noticed that the fabric covering only extends a few feet behind the pilot's seat, terminating in a pyramidal stream lining, as it has been found that the rudder is more effective when the rear portion of the *fuselage* is left uncovered.

The controls are of the usual type, and consist of a central lever, which is moved from side to side for lateral balance and forwards and backwards for elevation and depression. A foot bar operates the rudder.

Flown by Mr. Jack Alcock, the machine has shown itself capable of very good work, and its performances to date include that of climbing to an altitude of 2,000 ft. At the present moment the Parsons pendulum paddle-wheel stabilizer is being fitted, and tests of this interesting device will be carried out in the near future.

LIEUT. J. R. B. KENNEDY'S DEATH.

AT the inquest held by Mr. Gilbert H. White, Coroner for West Surrey, at Byfleet, on Monday last, upon the body of Naval Lieut. James Robert Branch Kennedy, who was a passenger in a monoplane, which came to grief at Brooklands on Friday, under the pilotage of Mr. Gordon Bell, who still lies in a critical condition at Weybridge Cottage Hospital, some strong evidence of risky flying was given.

Mr. Gilbert H. White stated that he did not propose to adjourn the inquest for the attendance of Mr. Bell, as he understood that some considerable time must elapse before the patient could give evidence, and even then he would almost certainly remember nothing about the accident.

Mr. Vivian Gaskell Blackburn, a pupil at Brooklands, said he saw the monoplane arrive from Eastchurch about 5 o'clock on Friday afternoon. It was being flown very low, and as it entered the aerodrome only just cleared Shed 28. The machine encircled the flying ground for 15 or 20 mins., and several times witness thought it must touch the sheds. Finally it was piloted between Sheds 23 and 24, and then turned sharply between 27 and 28, missing the roofs by a few inches. Immediately after clearing the sheds the aeroplane, which was steeply banked, made a dive to the ground, which it struck first with its left wing and then with its nose. Neither the pilot nor his passenger were thrown out, but the machine itself was wrecked. Deceased was very much knocked about, and death must have been instantaneous. Mr. Bell was taken on a stretcher to the temporary hospital near by, and afterwards removed to the Cottage Hospital at Weybridge.

In his opinion the machine was flown throughout in a very dangerous manner. Not only did it keep much too low—being never more than about 30 ft. from the ground—but it described very small circles, and consequently had to be steeply banked when turning. The engine, a 120 h.p. 6-cyl. Austrian-Daimler, appeared to be running beautifully.

In reply to the coroner, witness said the banking was so excessive that at one time the machine seemed to be nearly vertical, and as if it was standing on one wing tip. Hitherto, so far as witness had personal knowledge, Mr. Bell had always flown the machine very carefully.

But this struck you as reckless flying?—Yes, exceedingly reckless.

Mr. Edward Victor Hammond, aeroplane manufacturer at Brooklands, considered that the machine at times was flown in a highly dangerous manner, although right up to the accident it remained under perfect control. Once Mr. Bell made a dive straight at witness and Mr. Blackburn, then rose and skimmed the shed roof, waving his hand in greeting as he did so. The engine

was running splendidly, and there seemed nothing whatever the matter with the monoplane itself. Later the engine appeared to be throttled down and ran somewhat slower. In making his turns the pilot banked very steeply, and when the accident happened the machine was almost perpendicular.

Mr. Leon Coatalen (Sunbeam Motor Co.) said the engine must have been running exceptionally well for the pilot to have made such sharp turns without coming to grief sooner than he did. In his opinion the cause of the accident was not the stopping of the engine, but the sharp turn and steep banking, which, as the machine was so low, gave it no chance to recover equilibrium.

Ronald Charteris, managing director to the All British Engine Company, said the engine had been throttled down on several occasions previously during the flight, but not just before the accident, when it was giving full power. He considered the performance as reckless fancy driving, which would have been comparatively safe 500 ft. up, but being indulged in so near the ground became extremely dangerous. He was satisfied that the whole of the damage to the monoplane was caused solely through contact with the ground, and that the accident was due to no defect in the machine or failure of the engine. In his opinion there were few machines which could have gone through such a test safely so long.

Replying to Mr. Woods, for the Admiralty, witness said that as the local representative of the Royal Aero Club he was reporting the facts to that body, who would fully inquire into the handling of the machine by its pilot.

Major Lindsay Lloyd (clerk of the course at Brooklands) asked if there was a gallery of spectators on the ground at the time.

Witness: No, hardly anybody. It was not done to show off the machine to a crowd of onlookers.

Dr. Eric Gardner said the cause of death was a fractured skull, and, replying to a question by Mr. Woods, he stated that neither in the case of deceased nor of Mr. Bell would the wearing of a padded helmet have prevented the particular injuries which they received.

In summing up, the coroner said he did not wish to blame Mr. Bell unduly, but all the witnesses agreed that his handling of the machine was fanciful and dangerous, and it was this, in his opinion, which led to the accident.

The jury returned a verdict of death from misadventure, and in a rider expressed the opinion that no pilot should be allowed to take such grave risks whilst carrying a passenger.

Mr. Charteris undertook to convey this expression to the Royal Aero Club.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on the 17th inst., when there were present: Col. H. C. L. Holden, C.B., F.R.S. (in the Chair), Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Prof. A. K. Huntington, Mr. F. K. McClean, Mr. Alec Ogilvie, Mr. C. F. Pollock, Mr. T. O. M. Sopwith, Mr. R. W. Wallace, K.C., and the Secretary.

New Members.—The following new Members were elected:—Edward Mayo Chapman, Eardley Haydon Lawford, Reginald Moreton, and Capt. John W. Taylor, J.P.

Aviators' Certificates.—The following Aviators' Certificates were granted:—

No.	Date.	
500	May 29, 1913	Assistant-Paymaster Charles Robert Finch Noyes, R.N. (Bristol Biplane, Naval School, Eastchurch).
501	May 30, 1913	Lieut. H. D. Harvey-Kelly (Royal Irish Regt.) (Maurice Farman Biplane, Central Flying School, Upavon).
502	June 2, 1913	George Thomas Harvey Pack (Shipwright, Naval) (Short Biplane, Central Flying School, Upavon).
503	June 2, 1913	Lieut. Arthur Bruce Gaskell, R.N. (Maurice Farman Biplane, Central Flying School, Upavon).
504	June 2, 1913	Reginald Hugh Carr (Grahame-White Biplane, Grahame-White School, Hendon).
505	June 3, 1913	Lieut. William George Sitwell, R.N. (Maurice Farman Biplane, Central Flying School, Upavon).
506	June 3, 1913	Frank Widenham Goodden (Caudron Biplane, Ewen School, Hendon).
507	June 3, 1913	Frank Hudson (Deperdussin Monoplane, Deperdussin School, Hendon).
508	June 3, 1913	Capt. George Marshall Griffith, R.G.A. (Bristol Biplane, Bristol School, Salisbury Plain).
509	June 3, 1913	Capt. Henry Fawcett, R.M.L.I. (Maurice Farman Biplane, Central Flying School, Upavon).
510	June 3, 1913	Eric Bentley Bauman (Deperdussin Monoplane, Deperdussin School, Hendon).
511	June 12, 1913	Joseph Raymond de Laplane (Bristol Biplane, Bristol School, Salisbury Plain). Subject to permission of the Aero Club de France.
512	June 13, 1913	Sub-Lieut. Douglas Claude Strathearn Evill, R.N. (Grahame-White Biplane, Grahame-White School, Hendon).
513	June 13, 1913	George Lancelot Gipps (Bristol Biplane, Bristol School, Salisbury Plain).
514	June 13, 1913	Francis Percy Adams (Bristol Biplane, Bristol School, Salisbury Plain).
515	June 13, 1913	William Birchenough (Grahame-White Biplane, Grahame-White School, Hendon).
516	June 13, 1913	Lieut. Ronald Burns (Australian Commonwealth Military Forces) (Bristol Biplane, Bristol School, Salisbury Plain).
517	June 13, 1913	2nd Lieut. Charles Francis Beevor (18th (Q.M.O.) Hussars) (Vickers Biplane, Vickers School, Brooklands).
518	June 14, 1913	Lieut. Edward Overend Priestley, R.N. (Bristol Biplane, Bristol School, Salisbury Plain).

ACCIDENTS INVESTIGATION COMMITTEE OF THE ROYAL AERO CLUB. REPORT No. 12.

REPORT ON THE FATAL ACCIDENT TO LIEUT. DESMOND L. ARTHUR, WHEN FLYING AT MONTROSE ON TUESDAY, MAY 27TH, 1913, AT ABOUT 7.30 A.M.

Brief Description of the Accident.—Lieut. Desmond L. Arthur, flying a B.E. biplane No. 205 fitted with a 70 h.p. Renault engine, on Tuesday, May 27th, 1913, at about 7 a.m., left the flying ground at Montrose for an ordinary practice flight. After being in the air for about 30 minutes he was descending in a left-hand spiral at about 2,500 feet and had made one complete turn. Shortly after this the

Aeronaut's Certificate.—The following Aeronaut's Certificate was granted:—

31. L. H. Mander.

Accidents Investigation Committee.—On the motion of Col. H. C. L. Holden, the reports on the following accidents were unanimously adopted:—

No. 12. Lieut. Desmond L. Arthur at Montrose.

No. 13. Mr. Geoffrey England at Salisbury Plain.

(Note.—Full reports will be found in this issue.)

Daily Mail Cross-Atlantic Prize, £10,000.—Correspondence with the Proprietors of the *Daily Mail* was considered, and the rules submitted by the Competitions Committee were approved with certain additions dealing with the course and the aircraft. These rules will be published in the next issue.

Aerial Navigation Regulations.

The Chairman of the Club, the Marquess of Tullibardine, has been in communication with the Admiralty, War Office and Home Office in connection with the refusal of the Home Office to grant exemptions under the Aerial Navigation Act to Competitors taking part in the *Daily Mail* £5,000 Prize, the Aerial Derby, and the Hurlingham Balloon Contests.

A Conference has now been fixed to take place at the Home Office, on Tuesday next, the 24th inst., at which representatives of the Admiralty, War Office and Home Office will meet the Royal Aero Club. The following will attend on behalf of the Royal Aero Club: Col. H. C. L. Holden, C.B., F.R.S. (Vice-Chairman), Mr. Alec Ogilvie, Mr. T. O. M. Sopwith, Mr. R. W. Wallace, K.C., and the Secretary.

Mortimer Singer £500 Prize.

Intending Competitors are again reminded that this Competition is now open.

Mr. H. G. Hawker on a Sopwith Biplane has already made one or two attempts, and will be going again as soon as some minor alterations to the aircraft have been completed. In giving the specification of the aircraft used by Mr. Hawker, an error was made in regard to the motor. The aircraft is fitted with a 100 h.p. Green.

Height Records.

Mr. H. G. Hawker has been keeping the officials of the Club fairly busy of late. On Sunday last, with the Sopwith Biplane, he made an attempt on the British Height Record with two passengers. The record of 8,400 ft. stands to the credit of Major E. L. Gerrard, R.M.L.I. Mr. Hawker, however, managed to top the 8,000 ft., but did not surpass the existing record. The following day, Monday, with another Sopwith Biplane, he set out for the record with one passenger. The present official record is 10,560 ft., standing to the credit of Lieut. G. de Havilland. Mr. Hawker, according to the sealed barograph, attained a height of about 12,000 ft. After about half-an-hour's rest, he decided to make another attempt on the two-passenger record, and on this occasion his barograph recorded about 10,000 ft.

The barographs are now being tested, and the figures will be duly submitted to the Committee of the Club for official recognition.

It is interesting to note that these three flights by Mr. Hawker were all made within 24 hours.

Balloon Race at Hurlingham.

On Saturday, the 28th inst., a Long Distance Balloon Race will take place at the Hurlingham Club, Fulham, S.W., at 3 o'clock, for a Cup presented by Mr. A. Mortimer Singer.

Entries close on Tuesday next, the 24th inst., and so far the following have entered: Major E. M. Maitland and Mr. Lionel H. Mander.

Members will be admitted free to the Hurlingham Club on presentation of their Royal Aero Club Membership Cards.

aircraft appeared to change on to the right bank, and about this time the outside tip of the top right-hand plane was observed to fail and the planes of the right wing collapsed. About the same time a puff of smoke was seen to be emitted from the engine, and the sound of the acceleration of the engine was subsequently heard. The aircraft fell comparatively slowly to the ground. The pilot was observed to fall from the aircraft shortly after the acceleration was heard. The pilot struck the ground about 160 yards from the place where the aircraft fell, and was killed instantly. The aircraft was completely smashed.

Lieut. Desmond L. Arthur was granted his Aviator's Certificate No. 233 on June 18th, 1912, by the Royal Aero Club.

Report.—Representatives of the Accidents Committee visited the scene of the accident near Montrose and took evidence from the eye-witnesses. They also made a careful examination of the wrecked aircraft.

The Committee sat on Monday, June 2nd, 1913, and Tuesday, June 10th, 1913, and received the report of the Club's representatives. Major F. H. Sykes, Commandant of the Military Wing of the Royal Flying Corps, Major C. J. Burke, O.C. No. 2 Squadron, Montrose, and Major R. Brooke-Popham, O.C. No. 3 Squadron, Larkhill, attended and gave evidence on various points raised by the Committee. Mr. Mervyn O'Gorman, the Superintendent of the Royal Aircraft Factory, also attended before the Committee, with Mr. F. Green and Mr. Peters two officials of the Factory.

From the consideration of the evidence, the Committee regards the following facts as clearly established:—

(1) That the aircraft was built at the Royal Aircraft Factory in June, 1912, and rebuilt there with new wings in August, 1912, and since that date had been flown fairly regularly by Officers of the Royal Flying Corps.

(2) The examination of the wrecked aircraft clearly indicated that the top right-hand wing tip had been broken at some time or another and repaired in three places. The main rear spar had been broken in one place about 11 inches from the tip, and the member forming the extreme edge had been repaired in two places, one on either side of the rear main spar.

(3) The joint between the new and the old piece of the main spar had been made in a most improper and unsafe manner. The taper splice in the wood work, about 7½ inches long, was very roughly made and badly fitted, there being places in which the glue was ¼ inch thick. The splice was subsequently bound with whipcord, which was not treated with cobbler's wax or varnished to prevent it becoming loose. The new portion of the spar was not varnished, but left in its natural state.

(4) After the repair had been made, new fabric was put over that portion of the wing affected by the breakage. The new fabric was

of different material from that of the rest of the wing. The representatives of the Royal Flying Corps and the Royal Aircraft Factory reported that their records contained no entry of this repair having been made to the wing of this aircraft since it was rebuilt.

(5) Pieces of the wing and struts were picked up about a mile away from the spot where the aircraft struck the ground, and in the direction from which the aircraft was seen to come, and in such positions that they must have fallen from the aircraft whilst still in the air.

(6) There was practically no wind at the time of the accident.

(7) Lieut. Arthur was properly strapped into the machine before starting the flight. The belt was found broken but not unfastened.

Opinion.—The Committee is of opinion that the primary cause of the accident was the failure of the faulty joint in the repair to the rear main spar. This joint, subjected as it necessarily was to vibration when flying, and probably at the last only held together by the wrapping of cord, the glue having failed previously, eventually gave way. The failure of the joint caused the collapse of the wing tip, which broke a transverse rib which was acting as a strut. The loss of this strut caused the wing to collapse progressively from this point towards the fuselage.

The Committee is further of opinion that the repair referred to above was so badly done that it could not possibly be regarded as the work of a conscientious and competent workman.

The Committee was furnished with copies of the various instructions and orders for flying, as well as the standing orders in connection with the use of aircraft. These orders are most complete and comprehensive.

Recommendation.—This accident points to the necessity for expert superintendence of every repair, however slight, of the structure, and independent inspection of such repair when completed, full details being recorded in the history sheet of the aircraft. After any important repair to the structure has been made, it should be so marked that both the workman by whom it was done, and the examiner who subsequently passed it fit for service, can be identified.

REPORT No. 13.

REPORT ON THE FATAL ACCIDENT TO MR. GEOFFREY ENGLAND WHEN FLYING AT LARK HILL, SALISBURY PLAIN, ON WEDNESDAY, MARCH 5TH, 1913.

Brief Description of the Accident.—Mr. Geoffrey England, flying a Bristol Monoplane fitted with an 80 h.p. Gnome engine, started from the Company's sheds at Lark Hill, on Wednesday, March 5th, 1913, at 12.8 p.m., with the intention of remaining in the air for upwards of an hour, this being a test for the Roumanian Government for which the aircraft was destined. At 12.40 p.m., having completed a circular flight at a height of at least 3,000 feet, he was observed to be descending as if intending to return to the starting place. At a height of about 600 feet the left wing of the aircraft broke, a considerable portion of the tip became detached in the air, and the aircraft dived to the ground. The aviator, who was not thrown out of his seat, was killed.

Mr. Geoffrey England was granted an Aviator's Certificate No. 301 on September 17th, 1912, by the Royal Aero Club.

Report.—The Committee visited the scene of the accident on Friday, March 7th, 1913, and spent a considerable time in examining the wreckage "in situ," and afterwards sat in Committee at Amesbury and took evidence of eye-witnesses. The representatives of the British and Colonial Aeroplane Co. attended and gave evidence on various points raised by the Committee. Further meetings of the Committee were held on Wednesday, March 12th, 1913, Monday, April 7th, 1913, and Monday, June 16th, 1913.

From the consideration of the evidence the Committee regards the following facts as clearly established:—

(1) The aircraft was built in February, 1913, and had been flown three times previously.

The Ae. C.F. Grand Prix Balloon Race.

ALL of the twenty balloons which started from St. Cloud, near Paris, on Sunday afternoon in the Grand Prix Race of the Aero Club of France, took a N.W. direction, and five of them landed in England, while a sixth, that containing MM. Dubonnet and Jourdan, dropped in the sea about twenty miles south of Ventnor, in the Isle of Wight. Victory went to M. Alfred Leblanc, in the balloon, "Ile de France," who was originally one of the reserves, and was only able to compete through one of the others failing to start. He landed at Marschapel, close by Hull, having covered 670 kiloms. in 24 hrs. 30 mins. His companion was Mdle. Julianne Marechal. Second place went to "La Louise," piloted by M. L. Pierron, who was unaccompanied, and who landed at Utterby, near Louth, after covering 650

(2) The wind at the time of the accident was higher than when the pilot started his flight, and was blowing at a rate of not less than 30 m.p.h.

(3) The aircraft at the time of the accident was turning to the right. It was descending at a steep angle, but apparently normally, and its direction of flight was towards the sheds. The engine was firing intermittently, being switched on and off by the pilot.

(4) When about 600 feet from the ground a portion of the structure of the left wing gave way, and about 6 feet in length of the left wing tip became detached in the air from the steel spars and fell about 100 yards away from the rest of the aircraft.

(5) The pilot decided to descend earlier than he originally intended. The reason why he did so is not known.

Opinion.—The Committee is of opinion that this accident was caused by the failure of the left wing, due to the fracture of the ribs, but whether the original failure was confined to the wing tip alone is not precisely clear. In any case, the failure was due to want of sufficient strength in the structure to withstand the extra stresses, produced either by a violent gust of wind or by sudden warping, when the aircraft was planing downwards at a high speed.

Since the date of the investigation the Committee has been in communication with the British and Colonial Aeroplane Company, the makers of the aircraft, with reference to some tests which the Committee would like to carry out on the wing of a complete machine. The Company has expressed its willingness to carry out tests, but the detail of the tests has not yet been decided upon. The Committee feels that this report should not be delayed any longer on this account and is therefore issuing it. The result of tests when carried out will be issued in a supplementary report.

166, Piccadilly, W. HAROLD E. PERRIN, Secretary.

kiloms. The next three in order were the "Mowglie," with M. Bourgeois and Mme. de Prelido on board, which landed at Lincoln, 642 kiloms. from Paris; the "Sagittaire," which carried M. Rumpelmayer and Mme. Goldschmidt, which descended at Ashbourne, in Derbyshire, having taken 23 hours to traverse 637 kiloms., and "La Touraine," with MM. Jules Dubois and Spire on board, which landed at Uppingham, near Leicester, its time for the 525 kiloms. being 22 hrs. 15 mins.

Marquis De Dion in the Air.

ON his Maurice Farman biplane, which it may be recalled has a De Dion engine, the Marquis de Lareinty-Tholozan on the 10th inst. at Buc took the Marquis De Dion for a long trip, and afterwards the Marquis De Dion also enjoyed a ride over the neighbourhood.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

On Monday, last week, Mr. Harry Hawker made a fine flight to the Isle of Wight, carrying with him as passenger Mr. Beger, the journey being made in the good time of 55 mins. Mr. Hawker came back from Cowes in 50 mins., flying at an altitude of 5,000 ft. all the way.

On Friday, Mr. Beevor, a pupil at the Vickers school, passed his *brevet* tests in most brilliant style, reaching an altitude of nearly 1,200 ft., from which height he effected landings on the mark—a pupil's record of which both he and his instructors, Messrs. Barnwell and Knight, may well feel proud.

There was some good flying on Saturday. Mr. Barnwell made several good cross-country trips on Mr. Hamel's old single-seater Blériot monoplane, recently acquired by the Vickers Co. Mr. Ronald had an excellent test flight on the new Sopwith tractor biplane, which he handled very well. Mr. Merriam and Mr. Bendall were out on the Bristol biplanes.

On Sunday, Mr. Hamel was just starting from Hendon for Brooklands on his new double-seater 80 h.p. Blériot monoplane, with his mechanic as a passenger, when one of the chassis wheels caught up a piece of wood, which was thrown into the propeller, breaking the latter, the pieces falling into the motor, and rendering the same *hors de combat*. As a result the trip on that machine had to be abandoned, but, determined not to disappoint his Brooklands friends, he was successful in borrowing one of the school Blériot monoplanes, on which he set out for Brooklands, where he gave several good exhibition flights, ultimately flying back to Hendon on the machine. Several flights had been booked on Mr. Hamel's new two-seater, and these, of course, had to be postponed until next Sunday, when, in addition, Mr. Hamel will take up the lucky person who shall win that day's ballot for the free flight.

Mr. Harry Hawker added to his laurels by annexing the British Altitude Record with two passengers (Mr. Dukinfield Jones and Mr. Simms) on the new Sopwith tractor biplane (80 h.p. Gnome), the machine climbing easily with its load to 8,580 feet (approx-

mately) or 180 feet better than the previous best of 8,400. The sky was absolutely cloudless and everyone had an uninterrupted view of the machine the whole time, which presented a most fascinating picture with the sun glistening on its bright parts from time to time as it turned during its steady climb. But for engine trouble the machine would have added another couple of thousand feet to its total. Mr. Hawker's feat was warmly applauded by the large number present. Another attempt will be made in the near future at Brooklands by Mr. Hawker, when he will essay the British Altitude Record with one passenger, and anyone desirous of making this trip with him should communicate with Mr. Sopwith, who has an interesting proposition to make in connection with the flight.

The winner of the ballot for the free flight was Mr. J. H. Brownrigg, of 15, Quarry Street, Guildford, who was, however, obliged to postpone his flight until next Sunday.

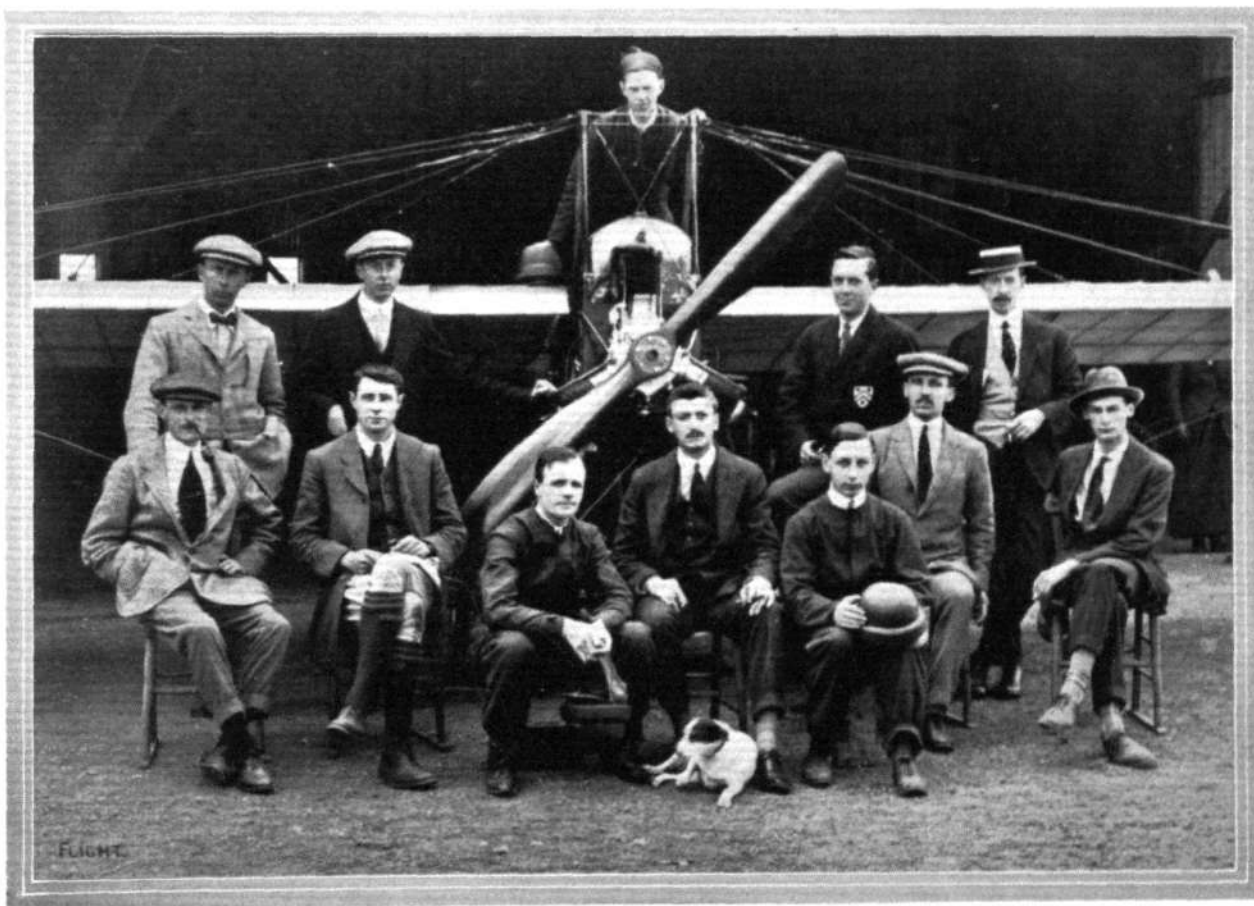
Mr. Barnwell was again flying the single-seater Blériot monoplane. Messrs. Merriam and Bendall were out on the Bristol biplanes. Mr. Hawker made several trips with passengers on the Sopwith tractor biplane. The competition arranged for pupils and instructors had again to be postponed owing to the gusty wind until next Sunday.

Mr. Salmiet has taken up his quarters at Brooklands with a new machine to which he is now putting the finishing touches and of which great things are expected.

Bristol School.—Bendall for test first thing on Monday last week, then up behind Mr. Richard Powell on straights, afterwards giving Mr. Bernard Howard two circuits as passenger. Too bumpy for further flying. The weather was too bad in the afternoon and evening, and flying was impossible.

On Tuesday and Wednesday blowing hard all day, and all busy in the sheds.

Merriam for test on Thursday, then up with Mr. Richard Powell, Lieut. Newton (new pupil), and behind Mr. Skene. Too bumpy afterwards for further flying. Merriam for solo, then up with Lieut.



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Some pupils and pilots at the British Deperdussin Monoplane School at Hendon.—Reading from left to right: (seated) Messrs. R. Jaques, N. C. Spratt (pilot), J. G. Barron, Capt. J. C. Halahan (School Manager), E. B. Bauman, Col. N. M. Smyth, V.C., E. R. Whitehouse; (standing) Lieut. H. le M. Brock (R. Warwickshire Regt.), Messrs. Denis Ware, D. G. Murray, W. D. Thompson (Sec., British Dep. Co.), and in the pilot's seat Mr. W. Brock (pilot).

Newton on good flight, afterwards up behind Mr. Skene on several straights. Bendall also up with these pupils. Mr. Skene then alone for first time doing two very good circuits, and later two excellent figures of eight at over 200 ft. Mr. Harris up twice on straights and circuits; Bendall giving Capt. Shott quite a number of straights, sitting behind. Merriam then took Capt. Shott on several straights and circuits, sitting behind. Bendall up again with Lieut. Newton, and Merriam behind Mr. Richard Powell on circuits, teaching pupil to *vol plané*, &c.; this pupil is now quite ready to go alone. Mr. Skene made another solo, making a good landing. Merriam and Bendall made a solo each to finish the evening's work.

On Friday Bendall out for test, and afterwards Mr. Skene flying quite exceptionally well on figures of eight, banking at a good height, and making a good landing. Bendall then behind Capt. Shott on several straights, and then up with Lieut. Newton.

After breakfast Merriam was testing a machine with a mechanic as passenger. It was too windy for further flying, and tuition was carried on in the hangars. In the afternoon Bendall for test, then Mr. Skene for a good solo. Bendall up behind Mr. Richard Powell for circuit then up alone, made a very good one.

Merriam for test on Saturday, then up behind Mr. Bernard Howard for several straights, sitting behind. Lieut. Noott made several circuits in a very choppy wind. Afterwards Mr. Skene made a very good flight. Too windy afterwards for further school work.

Merriam for test, taking Mr. Dudley Hiscox (prospective pupil) as passenger. Still too windy for further flying.

Vickers School.—Monday, last week, Pilot Knight and Messrs. Brancker and Beevor on No. 19 biplane, Barnwell on biplane No. 20. Knight, and then Mr. Mitchell, on No. 2 mono.

Wednesday, Knight on biplane with Mr. Elsdon (new pupil). Found wind very bumpy.

Thursday afternoon, Messrs. Knight, Orr Paterson and Mitchell straights on No. 2 mono. Barnwell and Knight on biplane with Mr. Elsdon. Knight on biplane with Lieut. Smith (new pupil). Mr. Beevor solo on biplane.

Messrs. Knight and Beevor, Friday morning, on biplane, Major Brancker solo. Messrs. Barnwell, Mitchell and Orr Paterson on No. 2 mono. In the afternoon, Knight, test flight on biplane. Mr. Beevor then took *brevet* in excellent style, rising to 1,000 ft. in his first set of eights, and to 1,100 ft. in the second set, and each time landing very near the mark. Knight on biplane with Mr. Elsdon and Lieut. Smith, Messrs. Knight, Orr Paterson and Mitchell on No. 2 mono.

Messrs. Barnwell and Mitchell on No. 2 mono. Knight and Barnwell on No. 19 biplane. Capt. Wood on No. 2 mono. In the afternoon, Barnwell on biplane with passenger.

Sunday, in the evening, Barnwell on No. 19 biplane with Mr. Webb (new pupil).

Eastbourne Aerodrome.

FRIDAY, last week, in the afternoon, Fowler gave several passenger flights with the Henry Farman, and on one occasion, after rising to about 2,000 ft., he flew right round the outskirts of Eastbourne, returning along the Front. Monday, Gassler was out first on the 50 h.p. Gnome-Blériot, and put up a very good flight. Later on he went out again on the same machine, and rising very rapidly he flew along the front, at well over 2,000 ft., finishing up with a very pretty *vol plané*. Messrs. Buster and Thornley put in some good practice on monoplanes; the former, however, had the misfortune to carry away his undercarriage in landing, and did considerable damage to the machine. Fowler was also out on the H. Farman, and gave three passenger flights to Pevensey Castle and back. Mr. Walter Wood, one of the local observers appointed by the R.Ae.C., was given a cross-country flight to his own house and back.

Liverpool Aviation School, Waterloo.

THURSDAY, last week, Melly trying two-seater did figure of eight, engine missing.

On Saturday, on the two-seater, he made solo round Altcar Rifle Range, 15 mins. at 750 ft.

He was again on the two-seater Monday and did figure of eight and spiral *vol plané*, but engine still missing badly. Later in the evening Melly did a series of figures of eight in two successive flights on the Melly-Blériot single-seater, then Hoodman—a former pupil—took the same machine up and also had two flights doing figures of eight on each occasion. Mr. Hume Barne, secretary of the proposed Liverpool Flying Corps, was present during these flights and showed his very keen interest in the practical side of aviation.

Melly again out Tuesday, trying the two-seater, did two figures of eight and still found the engine missing a bit.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Monday last week Lieut. Evill out at 5 a.m. on No. 7 doing straights, also Lieut. Eales also doing

straights with instructor. 5.45, Mr. J. D. North doing straights with instructor, also Mr. J. Russell, while Sir A. Sinclair was out doing straights alone.

Lieut. Evill out at 5 a.m. Wednesday doing straights, and Lieuts. Eales and Bodam-Whetham doing straights with instructor.

Thursday Lieut. Evill out 4.35 a.m. doing circuits with instructor in passenger seat; this pupil afterwards doing circuits alone. 5.10, Lieut. Eales getting in more practice in straights with instructor. Sir A. Sinclair doing circuits.

At 4.45 Friday, Lieut. Evill out doing circuits and figure eights, on No. 109. Lieut. Eales doing straights with instructor. Sir A. Sinclair doing circuits. Mr. R. H. Carr getting practice on No. 109, doing figure eights and stunts. At 5.45, Lieut. Evill out for *brevet* tests, this pupil passing all tests in what was described by the observers as the best style seen at Hendon for some time. Lieut. Moore and Mr. J. E. North doing straights with instructor. At 7.20, Mr. Russell also out doing straights, followed by Lieut. Bodam-Whetham doing straights with instructor. W. Birchenough out at 12.58 p.m. doing circuits and figure eights, and practising ready for taking *brevet*, which he did later on in the afternoon, passing all tests in good style. Instructor Manton out at 4 o'clock practising on Blériot monoplane.

Blériot School.—On Monday morning last week Mr. Reilly went up to try for his *brevet*, but had only been aloft for a few minutes before he was forced to descend owing to a recurrence of engine trouble. Capt. Cox then went out on Taxi 1 and did a nice straight along the ground with the tail well up. Mr. Gower also did a very nice roll on B 1, and Mr. Williams got into the air for the first time.

On Thursday evening several pupils put in good work, Capt. Cox and Mr. Williams doing nice straights and Lieut. Low and Mr. Gower confining themselves to rolling practice. The following day Mr. Reilly did a circuit in the morning on No. 4, and Capt. Cox and Mr. Williams each did nice straights on No. 1, Lieut. Low contenting himself meanwhile with rolling well. In the afternoon, Capt. Cox and Mr. Williams improved on their morning's work, and both did very good straights. Lieut. Low and Mr. Gower put in some more practice rolling, and are both making excellent progress. At 3.45, Mr. Hamel, accompanied by Miss Trehawke Davies, flew over to Eastchurch on her 70 h.p. tandem.

Saturday was too windy for pupils. In the morning, Mr. Corbett-Wilson, with Pothet, his mechanic, as passenger, arrived on the former's 80 h.p. tandem from Hardelot, having done the journey in 1 hour 20 mins.

British Deperdussin School.—Lieut. Porte arrived from Brighton, Monday, last week, in 100 h.p., carrying passenger; did journey well under the hour. In early morning, Col. Smyth and Lieut. Brock on No. 3, flying straights. Mr. Spratt testing 60 h.p. at 2,000 ft. for 15 mins., and again in evening put up a splendid wind fight at 2,300 ft., a very fine performance.

Tuesday and Wednesday, strong wind all day; no school. In evening, Wednesday, Mr. Spratt, on 60 h.p., solo to 5,000 ft. Then with Capt. Cox to 1,400 ft.; had to come down in a hurry with broken oil-feed pipe.

Col. Smyth and Lieut. Brock each put in 10 mins. work on No. 3, Friday, both improving. Mr. Murray, 3 mins. on No. 2, broke patten in rough ground. Mr. Hervey-Bathurst joined school. In evening Mr. Spratt took up the 35 h.p. for 20 mins., at 1,500 ft., landing with beautifully calculated spiral dive. Lieut. Brock 15 mins. on No. 3. Col. Smyth 7 mins. on same, landings improved.

Saturday afternoon Lieut. Porte and passenger in 100 h.p., and Mr. Brock in 35 h.p., entered for cross-country race. The latter also in speed handicap, which he won. Later in evening Mr. Spratt, Mr. Brock, and Mr. Barron gave exhibition flights on this machine, Mr. Spratt being up at 1,800 ft. for 20 mins.

Sunday. Lieut. Porte exhibition flight on 100 h.p. for 10 mins. Mr. Brock also made several very fine flights on the 35 h.p. during the afternoon.

W. H. Ewen School.—On Monday last week, school out at 4.30 a.m. M. Baumann made test flight on 35 h.p. Caudron No. 1, and then handed machine to Lieut. Hewes, who made several good straight flights. Mr. F. W. Goodden was also getting good results from pupils on the 35 h.p. Caudron No. 2. After testing he handed machine to Messrs. Pendlebury, Jagenberg and Cowling, who were making good progress in straights. The wind rising, put an end to further school work about 8.30 a.m.

Tuesday was too windy for school work. M. Baumann was out at 4.30 a.m. on Wednesday, making a test flight on 35 h.p. Caudron, but found it too bumpy for school work. During the afternoon Mr. Sydney Pickles made several splendid flights on the new 40-45 h.p. Caudron, during one of which he reached 5,000 ft., finishing with a fine spiral.

Pupils out at 4.30 a.m. on Thursday, when M. Baumann, after testing 35 h.p. Caudron No. 1, handed machine to Messrs. Cowling,

Dalrymple-Clark and Capt. Jennings, who were rolling, and Lt. Bewes who was making straight flights on same machine, landing well. Wind then rose and put a stop to further school work. M. Baumann was later on 35 h.p. Caudron, rising to a good height, and finishing with a spiral. During the morning Mr. Sydney Pickles delivered the 40-45 h.p. Caudron to Farnborough, flying from Hendon. He rose rapidly, and flying steadily he arrived at Farnborough at 6,000 ft. finishing with a spiral, and later putting the machine through all the tests. M. Phillippe Marty also delivered an 80 h.p. Caudron hydro. to the Isle of Grain, flying from Crottoy. During the afternoon M. E. Baumann and F. W. Goodden put up some good exhibition work on the 35 h.p. Caudrons Nos. 1 and 2.

M. Baumann was out with pupils at 4.20 a.m. on Friday. After testing the 35 h.p. Caudron No. 1, he handed the machine to Lieut. Bewes and Mr. Prosser, who were doing good straight flights. F. W. Goodden was also busy with pupils on the 35 h.p. Caudron No. 2. After testing he handed machine to Messrs. Dalrymple-Clark, Cowling, and Capt. Jennings, who were making good progress in rolling. The school was again out at 3.40 p.m., when all the above pupils were out as well as Mr. A. L. Russell, who made several straight flights.

Saturday was too windy for school work. Some excellent exhibition work, however, was done by Mr. Pickles on the new 45 h.p. Caudron and M. Baumann on the 35 h.p. Caudron.

At 4.20 a.m. on Sunday, M. Baumann and F. W. Goodden were busy with pupils. M. Baumann, after testing the 35 h.p. Caudron No. 1, handed the machine to Lieut. Bewes and Mr. Prosser, who were doing straight flights, while F. W. Goodden was instructing Messrs. Jagenberg, Dalrymple-Clark and Capt. Jennings, who were doing good straights. Mr. A. L. Russell was also doing straights on the same machine.

Temple School.—On Wednesday last week, at 3.15 a.m., George L. Temple flew over Collindale Avenue and neighbourhood to wake up pupils, later taking Lieut. Ambler as passenger and handing him over the machine for ten minutes' straights. The wind rising prevented further work. Later in the day G. L. Temple was

flying in his usual good style. The next day, weather being too rough for pupils, G. L. Temple gave six exhibition flights, his last flight being made almost in the dark, landing well.

At 3.45 a.m. on Friday G. L. Temple made a test flight on the 35 h.p. Caudron of 15 mins., and handed over to Douglas Ritchie, the latter flying a circuit. Lieut. Maurice Ambler, R. Penny, A. Vaile, M. Lance each 10 mins. on straights, all showing good improvement. D. Ritchie again flew a circuit, handling the machine well.

On Saturday Mr. G. L. Temple gave two short exhibition flights in a gusty wind. The next day he gave several good exhibition flights, his "switch-backs" being especially noticeable. Later in the evening, under G. L. Temple, D. Ritchie was practising half-circuits.

At 4 a.m. on Monday, G. L. Temple was testing for 15 mins., flying to the Edgware Road to wake pupils. D. Ritchie flew two circuits, landings much improved, and Messrs. Penny, Lance, Ambler and Vaile, each 10 mins. straights. The next day at 6 a.m. Messrs. Ritchie, Vaile, Lieut. Ambler, Penny and Lance, 5 mins. each on Caudron. In early afternoon, G. L. Temple flying for 12 mins.

Salisbury Plain.

Bristol School.—Pixton test on Monday last week. Lieut. Col. Hamilton, Lieut. Burns, Mr. Gipps, and Mr. Adams excellent solos. Mr. Delaplane, solo, practising landings. Pixton, with Lieut. Osmond, R.N., Pizey testing new school biplane, and with Lieut. Miley, R.N., and Air-Mechanic Pratt.

Wind far too strong all day on Tuesday to permit of school work.

On Wednesday, Pixton, after trial, with Lieut. Miley (2 flights), Lieut. Osmond (1 flight), Lieut. Barnby (1 flight), and Air-Mechanic Pratt (2 flights). Later, Pixton testing new school biplane, Pizey testing new Bristol sociable monoplane, and then with Lieut. Osmond, R.N., and Lieut. Barnby. Very fine solos by Lieut. Col. Hamilton, Lieut. Adams and Mr. Gipps, whilst Major Hewetson and Mr. Delaplane both taxiing on single-seater monos. under the instruction of Pizey. High wind prevented further work.



SOME AVIATORS AND PUPILS AT THE EASTBOURNE AERODROME.—From left to right: (seated) Messrs. H. Fill, F. Hucks, F. B. Fowler; (standing) B. Roberts, L. Fry, E. L. Gassler, W. Morkill, and in the pilot's seat, T. A. Rainey.

Busteed for trial on Thursday on one of the Roumanian side-by-side monoplanes. Pixton testing conditions for pupils. Pizey, with Capt. Andre Popovici, on side-by-side monoplane, for reception test of Roumanian war office; machine successfully passed. Major Hewetson taxiing well on single-seater mono. Pixton, on biplane, giving tuition to Lieut. Osmond, R.N., and Lieut. Miley, R.N. Pizey then with same two pupils on biplane. Pizey, with Capt. Popovici, on Roumanian side-by-side monoplane for 1,000 ft. test climb, witnessed by Prince Cantacuzene on behalf of the Roumanian war office. Machine carried out the test successfully. Prince Cantacuzene next out on this same machine, with Capt. Popovici as passenger, and flew excellently. Capt. Barnaby receiving biplane tuition under Pizey. Pixton instruction to Air-Mechanic Pratt on biplane. Pizey testing new school biplane. Pizey with Lieut. Constantine Beroniade for biplane tuition, followed by Lieut. Osmond, R.N. Pixton next gave tuition on biplane to the following pupils:—Lieut. Miley, R.N., (3 flights), Capt. Barnaby (3 flights), Capt. Andre Popovici (1 flight), Lieut. Osmond, R.N., (3 flights), and Air-Mechanic Pratt (1 flight). Sous-Lieut. Alex. Pascanu taxiing well on the single-seater monoplane. Mr. Delaplane for the second half of his ticket, which he passed successfully. Pixton for solo on the 80 h.p. monoplane with nicely banked turns, Capt. Andre Popovici and Mr. Delaplane each doing good straights on the Anzani monoplane. Pizey on biplane with Lieut. Osmond, R.N., on Saturday, but found too bumpy for tuition work. Weather turned out rather good after breakfast, and Pizey made a flight with Mr. Gipps to show him the *brevet* course. Mr. Gipps then went for his *brevet* and successfully passed. Mr. Adams also went for his certificate, and passed, flying quite well at a good height. In the afternoon, Lieut. Burns was sent for his ticket, and passed successfully. All the pupils then had several turns each on the single-seater monoplane. Lieut. Alex. Pascanu, Mr. Delaplane, Lieut. Constantine Beroniade and Capt. Andre Popovici, all did some useful straights, and making good progress. Busteed finished the evening's work by giving long tuition flights to Major Hewetson and Mr. Garnett on the side-by-side monoplane.

Jullerot first up for solo on the side-by-side mono., after which he gave biplane tuition to Lieut. Miley and Lieut. Beroniade. Busteed, Major Hewetson twice; Mr. Garnett, Capt. Popovici and Lieut. Pascanu.

In the afternoon, Jullerot took Capt. Popovici on a side-by-side monoplane. Pizey with Lieut. Osmond, R.N., and Lieut. Miley, and Air-Mechanic Pratt two trips. Busteed gave monoplane tuition to Major Hewetson, Mr. Garnett, and Capt. Popovici, Lieut. Pascanu, Lieut. Beroniade. Busteed took Mr. Garnett for another good flight, this pupil then ascending for a solo; Major Hewetson first taken out for tuition then up for a solo. Jullerot out with Lieut. Beroniade, and then for solo on the 80 h.p. Bristol monoplane.

Royal Flying Corps. No. 3 Squadron.—Wednesday of last week opened fair, there being a 30-mile wind blowing, which made the conditions very bumpy up to 1,000 ft., but above that they were beautiful. Sergt. Bruce was first out on M. Farman 270, followed by Lieut. Roupell, who took up Air-Mechanic Wilson on H. Farman 286. Major Higgins then took over this machine and Capt. Allen was out on the Avro 288. Lieut. Conran followed with some scouting on the Avro, and at 7.27 Lieut. Cholmondeley with Air-Mechanic Mitchell arrived back from Colchester, having stopped overnight at

Hendon, and called at Farnborough on their way to the Plain. Lieut. Carmichael arrived later on in the day, having followed the same route. Both officers were on H. Farman. Capt. Fox arrived from Farnborough on the I.C.S. Blériot at 9.50 and returned to Farnborough by train in order to fly over another monoplane.

The weather was splendid on Thursday morning. Capt. Fox arrived with another Blériot, this time a two-seater, with Air-Mechanic May as passenger. They did the journey in 53 mins., at a height of 3,000 ft. Lieut. Ashton out on M. Farman 269, with Major Trenchard as passenger. Capt. Connor on M. Farman 270 with Capt. Lewin, R.F.A., as passenger.

On Friday morning Lieuts. Small and Glenwill made several flights for testing purposes before starting for Lydd on M. Farman 216. At 11.45, with Lieut. Small as pilot, they started for Lydd, but on reaching Hengleton, near Brighton, they were forced to come down owing to engine trouble and smashed the machine, but fortunately pilot and passenger escaped injury. Several officers were out during the evening.

On Saturday the officers and men were busy packing up ready to shift to their new quarters at Mile Bolt, where they entered into possession.

On Monday eight machines were flown over: 2 Blériots by Capt. Fox, the Avro by Lieut. Conran, H. Farman by Lieut. Roupell, M. Farman by Lieut. Allen, BE's by Capt. Allen.

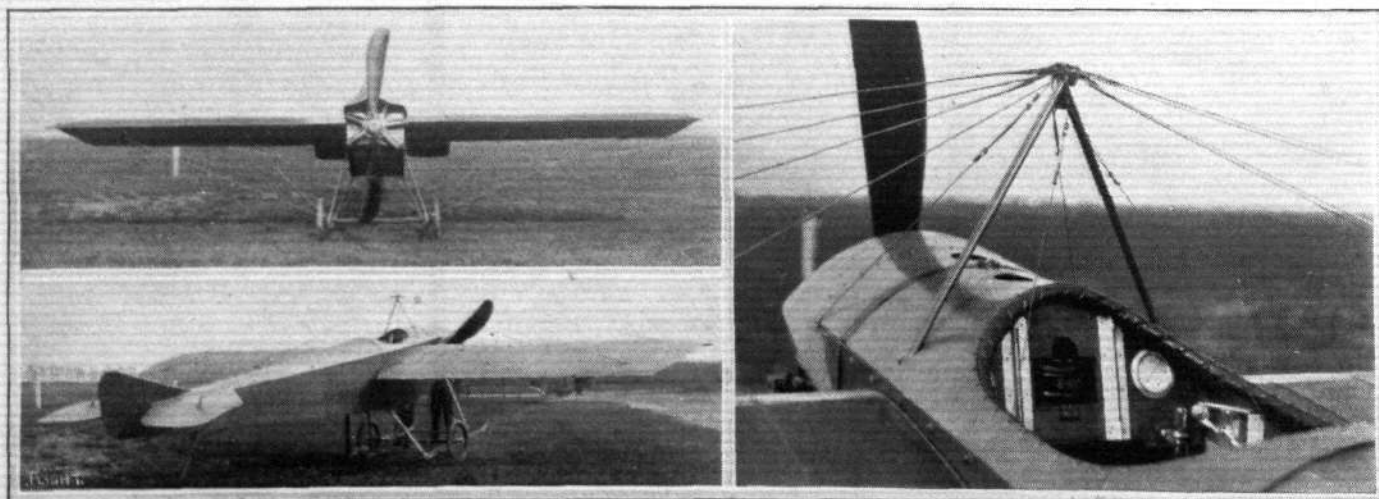
On Tuesday morning, Capt. Fox on I.C.S. Blériot, Lieut. Conran on the Avro, Lieut. Roupell on H. Farman, made a cross-country flight around the Isle of Wight.

On Wednesday of last week the R.F.C. held their sports, which proved highly successful, and officers, non-coms. and men are to be congratulated on the way everything was arranged. The string band of the Cornwalls, stationed at Tidworth, was in attendance, and played during the evening for dancing.

Sussex County Aero Club (Shoreham).

On Wednesday of last week Mr. A. E. Geere, the new Avro manager and instructor, was out on the 35 h.p. Green, followed afterwards by Mr. Shaw, a very promising pupil; he is going for his *brevet* very shortly. On Thursday, Raynham put fourth single-seater through tests at Farnborough, climbing 2,000 ft. in 5 mins.—a very encouraging accomplishment. Friday, Messrs. Gaskell and Shaw were out, and Raynham was trying the new hydro. on the river by the 'drome. In alighting once it appeared as if a smash would be unavoidable, as the machine was making straight for the railway bridge which spans the river, but through Raynham's neat piloting all went well. The machine was taken clean under the bridge, much to the joy of all concerned.

Mr. Eric Pashley flew to Bognor, where he had the usual unpleasant experience from a too insistent crowd pressing in upon the space where he landed. It seems a pity that pilots should be subject to this risk, and all praise is due to those who avoid accidents of the sort likely to occur under such circumstances. The following day, Mr. Pashley intended to fly to Brighton with Mr. Clarence Winchester, but found the air much too bumpy, so the trip was postponed till the Monday, when a very delightful journey was made. In the evening he was up again several times, and Mr. A. E. Geere, who arranged the Bognor flight, was out on the Avro. Lieut. Ashton, accompanied by his mechanic, arrived on the M. Farman from Larkhill.



Three views of the Dyott monoplane which is now flying so well in America, as described in a recent issue of FLIGHT.

BRITISH NOTES OF THE WEEK.

Congratulations.

HEARTY congratulations to Mr. Harold E. Perrin, the popular secretary of the Royal Aero Club, on the birth of a son on Monday last.

Mr. Corbett-Wilson Back in England.

CONTINUING his journey home, Mr. Corbett-Wilson, on the 12th inst., started from Rheims at 5 a.m., being accompanied by his mechanic, Potet, who took his certificate at Hendon last year. The west wind was against the aviators, and the Blériot had a very severe tossing, and eventually, after covering 120 kiloms., landed at Peronne. He continued his journey the next day, and reached Harelol, near Boulogne, where the night was spent. On the following morning, the aviators were away from Harelol at 4.50 a.m., and making their way across the Channel, they continued to London, and arrived safely at the Hendon aerodrome, having covered the distance of about 120 miles in one hour and twenty minutes.

Flying at Brighton.

BRIGHTON and its sister town, Hove, are having really good opportunities of witnessing exhibitions of air work. A great deal has been done lately at the aerodrome and several machines landing there have passed over the two towns *en route*. Raynham brought the Avro hydro 'bus over on Saturday with Commander Seddon as passenger, and put her through the tests, which she passed very satisfactorily. During the trials Capt. X. was in the passenger seat and expressed himself highly delighted with the machine. The 'bus was then dismantled and has since been despatched to Germany. Mr. Eric Pashley was expected on Sunday, but the visit was postponed until the following day, when Mr. Clarence Winchester accompanied him, taking photographs on the way. It appeared as if there were two passengers in the 'bus owing to the fact that Mr. Winchester carried a very large camera. In the evening Capt. Connor passed over the town in an M. Farman on way to Lydd.

Army Biplane Smash Near Brighton.

LIEUT. GLANVILLE and Lieut. Small had a narrow escape on Friday last week. They left Larkhill on a Renault-engined army biplane, with the intention of flying to Shoreham, but when over Worthing a sea-mist apparently came up, and they turned inland a little more. In consequence, however, the aerodrome at Shoreham was missed, and a descent was decided upon at Hangleton, near Brighton. On nearing ground the pilot caught sight of a pond, and in attempting to avoid this the machine crashed into a wall, tearing away some of the bricks. The 'bus was an absolute wreck, but both officers escaped without injury. FLIGHT correspondent was informed that the engine had been giving trouble, and was not running well when over Hangleton. The machine was subsequently taken to Shoreham and thence to Salisbury.

The Handley-Page Monoplane at Mansfield.

FOUR very good exhibition flights were made on the 50 h.p. monoplane, at Mansfield last Saturday. At 5 p.m., Mr. Whitehouse made a trial flight of a quarter of an hour's duration, including several wide circuits, in a gusty wind at about 400 feet, and about an hour later another flight of 20 mins. was made.

At 7.30 p.m., the wind was not so troublesome, and Mr. Whitehouse indulged in half an hour of fine switchbacks, spirals and banks and hedge jumping—the latter greatly pleasing the large gathering both inside and outside the ground.

The best show of all was made in the semi-darkness at 9 o'clock, when "bombs" were dropped with great accuracy—one missile "bursting" but 10 ft. from the mark. Without landing, Mr. Whitehouse then flew off towards Mansfield, which it appears he circled at a height of well over 2,000 ft. After a flight of about three-quarters of an hour, he was guided back to the ground by flares and rockets, and landed by a great spiral, which was loudly applauded.

Delivering Caudrons.

M. CAUDRON, on Thursday of last week, along with his pilot, M. Marty, received at their Crotoy aerodrome a wire from Mr. Ewen, at 6.5 p.m., asking for the immediate delivery of a hydro-aeroplane for the Admiralty. Notwithstanding the late hour the 80 h.p. Hydro. was brought out of the shed, and the two above-mentioned gentlemen immediately boarded, leaving Crotoy at 6.15 p.m. With a slight wind blowing, the evening was beautifully clear, and at a height of about 6,000 to 7,000 ft., the aviators were able to get a beautiful view of the English coast. They first of all landed in Sheerness Harbour, and immediately after went across to the Isle of Grain, arriving there about 8.35 p.m., where, with the Caudron combined wheels and floats which were fitted, they were able to give some exhibitions, both on the land and on the water.

On the same day, Mr. Sydney Pickles was out testing the new

British-built 40 h.p. Anzani biplane at Hendon, and put up an excellent exhibition with banked turns and spirals. Thereafter, he immediately started off to deliver the machine for the W. H. Ewen Aviation Co., Ltd., to the War Office at Farnborough, reaching an altitude of 6,500 ft., and accomplishing the journey against a stiff wind in 1 hr. and 8 mins. On arriving at Farnborough, Mr. Pickles did a beautiful banked spiral from this altitude, after which he was up again several times doing some spectacular flying, and putting the machine through its flying tests.

On Friday, the W. H. Ewen Aviation Co., Ltd., received delivery from the works at Hewlett and Blondeaus, another British-built Caudron, into which was immediately fitted a 45 h.p. Anzani motor, and on its test flight on Saturday, to which we refer elsewhere, was taken up to several thousand feet by Mr. Sydney Pickles. The way the machine climbed was remarkable, and Mr. Pickles demonstrated the machine to such advantage that even the most severe critics were not stinted in their admiration.

Sopwith Extensions.

NOT only have the Sopwith Aviation Co. had to augment their staff in order to cope with the increasing number of orders, but further accommodation has had to be secured, and a large skating rink at Surbiton has been taken over and added to the factory, where nearly 100 men are now employed. Important enquiries are being received from foreign Governments, deputations from whom are due in this country within the next fortnight. More tractor type machines are to be tested at Brooklands during the coming week.

Col. Cody Waterplaning.

LAST Monday Col. Cody was experimenting with a new float which is to be used on the machine with which he proposes to take part in the *Daily Mail* contests. The float carried sixteen men and the load was afterwards made up to 3,000 lbs.

The Fatality at Brooklands.

ELSEWHERE in this issue will be found a report of the inquest on Lieut. Kennedy, R.N., from which will be obtained some details regarding the accident which resulted in his death, and which occurred at the conclusion of a flight made from Eastchurch to Brooklands, with Mr. Gordon Bell piloting the Martin-Handasyde monoplane. After spending some days at Eastchurch giving demonstration flights on the machine to the naval aviators, Mr. Gordon Bell returned to Brooklands on Friday of last week, leaving the Naval Flying Ground about 6 p.m. After circling Brooklands once or twice the accident occurred, and the passenger, Lieut. Kennedy, was instantly killed, while Mr. Gordon Bell sustained severe injuries to the head, and at the time of going to press was still in a serious condition. We tender our earnest sympathies to the family of Lieut. Kennedy, and we hope Mr. Bell may not add a second victim to the tragedy. Nothing but regret and sympathy can be also expressed towards Messrs. Martin and Handasyde in this further blow to their work, although, if such poor comfort can be welcomed, the evidence at the inquest of Lieut. Kennedy proved that both the machine and engine behaved magnificently under the exceptional trials to which both were, apparently, unnecessarily subjected.

More Cellon Successes.

IT is interesting to note that the Sopwith biplane, which now holds the altitude records for pilot alone, one passenger and two passengers, was doped with Cellon, also that the Sopwith biplane which holds the duration record was treated with this dope.



The ubiquitous pilot, Gordon Bell, when he was flying one of the BE's with Capt. Dawes.

FOREIGN AVIATION NEWS.

A French Cross-country Record.

A NEW cross-country non-stop record for France was made by Lieut. Varcin on the 15th inst. Leaving Buc at 3.30 a.m. on his M. Farman biplane, with his mechanic as passenger, he flew to the St. Andre de Cubzac Military Aerodrome, near Bordeaux, where he landed at 11 a.m., after having taken seven and a half hours to cover the 477 kiloms. which separate the two places.

Records at the Vienna Meeting.

THE first two days of the aviation week at the Aspern aerodrome at Vienna, saw some remarkable performances, including the breaking of several records. On Sunday week, Perreyon on a Blériot—fitted with a 160 h.p. Gnome and Chauviere propeller—took up two passengers to a height of 4,700 metres in 35 mins., thus beating Lieut. Blachke's world's record of 3,580 metres. Later in the day Herr Illner on a Lohner took up two passengers to 4,580 metres, and the next day he improved on this and Perreyon's record by taking his two passengers to an altitude of 5,180 metres. A speed race of 4.5 kiloms. resulted in a win for Audemars on a Morane, and in a turning contest Chevillard was easily the victor on his H. Farman, while Bregi on a Breguet made the longest flight with passengers.

New Speed Records.

ON a Deperdussin monoplane at Rheims on Tuesday, Prevost improved on the world's speed records up to 130 kiloms. Fifty kiloms were covered in 16 mins. 43½ secs., 100 kiloms. in 33 mins. 30½ secs., and 130 kiloms. in 43 min. 38½ secs.

Brindejone Continues.

IN our last issue we gave particulars of Brindejone des Moulinais's splendid flight from Paris to Warsaw for the Pommery Cup. He intended to restart for St. Petersburg on Thursday of last week, but owing to the bad weather had to postpone it until Sunday morning, when he got away at 4.48 a.m. He did not succeed in accomplishing his object, having to stop at Dwinsk after flying about 350 miles, and, in landing, he broke a wheel, which entailed a delay of two days. He continued again on Tuesday, and then finished the remaining 350 miles to the Russian capital. After resting a couple of days it was his intention to fly back to Paris, this time by way of Helsingfors, Stockholm and Copenhagen.

Issy to Mourmelon on a Voisin.

ON a Voisin biplane built for the French Army, Rugere, with a passenger, on the 10th inst. went from Issy to Mourmelon, the journey taking 2 hours 52 mins.

Long Flights on Deps.

LIEUT. RADISSON, on a two-seater Deperdussin, on the 10th inst. made the 120 kilom. trip from Maubeuge to Rheims, while Lieut. Rochette, also on a Dep., completed 220 kiloms. in going over the same route and continuing to Bar-le-Duc. On the 12th Lieut. Radisson went on to Bar-le-Duc, covering the 100 kiloms. from Rheims in 45 mins. Two non-commissioned officers, Didier and Verdier, also made the trip from Maubeuge to Bar-le-Duc on two-seater Deperdussins.

A Blériot Superior Pilot.

UNDER difficult conditions, the wind being very fluky, Revol-Tissot, on the 12th inst., completed his tests for a military *brevet* over the Buc-Pontleroy course, with a stop at Cercottes camp. His mount was a Blériot.

A New Gnome Motor.

IN a month or so's time, the Gnome Co. will be introducing a new 50 h.p. motor, which will be known as the "monosoupape" or single valve type. It is said to give off 72 h.p., while the consumption of petrol is very much less than in the ordinary type 50 h.p. Gnome.

Testing the New Borel.

LAST Sunday, Daucourt was busy testing the new military type Borel monoplane, which has the propeller placed behind the main plane, the pilot and passenger being seated side by side at the front of the fuselage and thus being able to get a full view of everything below them.

Another British Officer at Etampes.

CAPT. O. M. CONRAN arrived at Etampes on the 10th inst., and at once commenced a course of instruction on Farman machines.

More Farman Superior Pilots.

BRIGADIER PELTIER-DOIZY made his second test on an H. Farman over the Mourmelon-Mailly-Sissonne-Mourmelon course on the 10th inst., and on the 12th Robert de Beauchamp, a Comite Nationale pupil, completed the tests on an M. Farman over the Buc-Orleans-Chartres-Buc route. On Saturday, Van Steyn made a 120 kilom. test on an H. Farman over the Etampes-Mailly Camp course.

Good Work at Bathiat School.

AT Mourmelon, at the Bathiat Sanchez School, on the 11th inst., two of the pupils, Robinet and Chausse, were each flying for an hour and a quarter at a height of 1,000 metres, while Sappers Berlot and Lannier made the trip from Rheims to Mourmelon and back in 42 mins. On the previous day Robinet had been flying for a long time at a height of 2,000, and Chausse was up at 1,200 metres for an hour and a half, making a test for a superior *brevet*.

A Nieuport Superior Pilot.

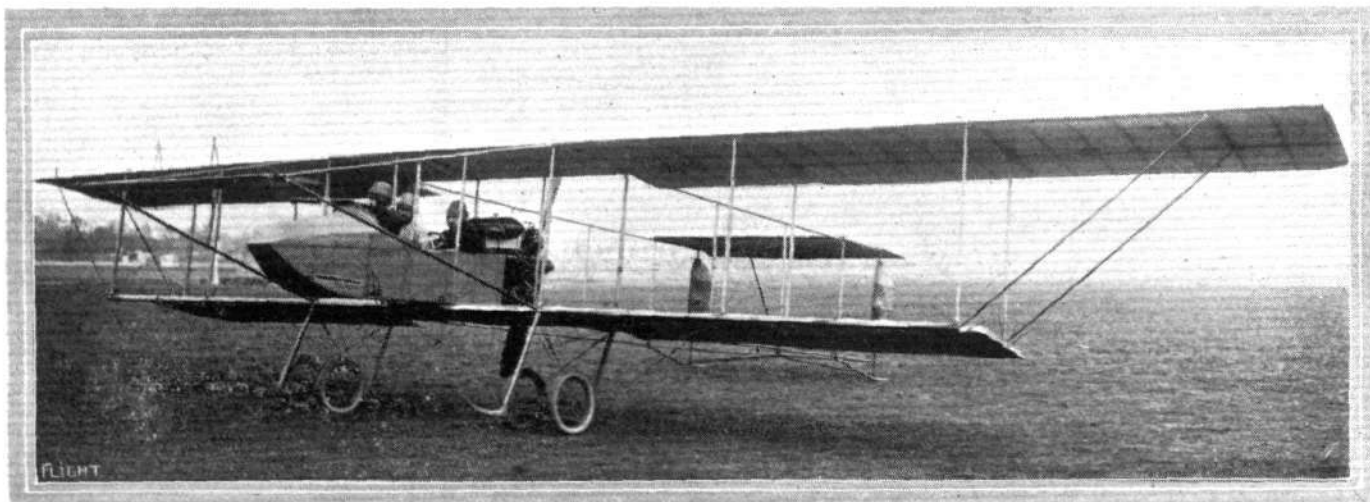
FLYING over the course Villacoublay-Chalons-Brienne-Villacoublay, on his Nieuport monoplane, Lieut. de Chailonge completed the cross-country tests for his superior *brevet* on the 11th inst.

Blériots for Mexico.

HAVING decided to organize a flying corps for their army, the Mexican Government, as the result of the visit of a deputation to France, has placed an order with the Blériot firm for 20 two-seater machines fitted with 80 h.p. Gnome engines. On the 11th, a party of 31 Mexican officers arrived at Buc to undergo instruction at the Blériot school.

Maurice Farman on a Monoplane.

AT Buc on Monday the Comte de Larenty-Tholozan took up on his military-pattern tandem-seated Blériot Mr. Maurice Farman, who enjoyed a lengthy excursion over the neighbourhood.



The biplane built by Champel, and with which he has been doing so much flying with passengers at Juvisy and elsewhere, and on which he made four new world's records for pilot and four passengers at Cercottes a little time back. The motive power, it may be recalled, is a 100-110 h.p. 10-cyl. Anzani engine.

A Promising Young Pilot.

ALTHOUGH he is only 21 years of age, Corpl. Paumier, who is stationed at Mourmelon, has already designed and built three biplanes, and on the latest one at the beginning of this week he completed the necessary tests to qualify for a special military certificate, flying over the Villacoublay-Mourmelon course. The machine is fitted with a 10-cylinder 100 h.p. Anzani motor.

Fine Cross-Country Work on Blériots.

OF the Blériot escadrille stationed at Belfort, Lieut. Gaubert, on the 11th inst., made a non-stop flight from Belfort to Troyes in 2 hrs. 58 mins., and later in the day he went on to Rheims, landing *en route* at Chépy, near Chalons-sur-Marne, which stands 1,800 metres high. On the following day Capt. Jacquet and Lieut. Sylvestre, also on Blériots, went from Belfort to Nancy and then on to Verdun and Chalons Camp.

A First Try for the A.C.F. Criterium.

IT will be remembered that this year the rules for the A.C.F. Criterium have been so altered that, instead of it being awarded for an aerodrome flight, it will be given for the best out-and-home flight across country, to a point at least 500 kiloms. from the starting place. The first attempt was made on Monday, when Gilbert on his Rhone-engined Morane started from Villacoublay with the intention of going to the Croix d'Hins aerodrome near Bordeaux and back. The outward journey was made in faultless style, and after two rounds of the Croix d'Hins aerodrome, without alighting, the return trip was entered upon. Gilbert was, however, doomed to failure on account of the violent wind which sprang up quickly, forcing him to land near Poitiers, after a non-stop flight of over 700 kiloms. Later he restarted, and flew back to Villacoublay, so that he covered 1,014 kiloms. in the day.

Cavelier Tries for the Michelin Cup.

OVER a course of 111 kiloms. from Etampes, Marcel Cavelier on a 50 h.p. Rhone-Deperdussin made an attempt for the International Michelin Cup on Monday. Starting at ten minutes to six he found the mists very thick, but he pluckily stuck to his task. As the day wore on the intense heat set up very dangerous remous, which did not add to the comfort of the pilot, yet in spite of these difficulties he made eight circuits of the course, and when he finished at half-past seven he had covered 888 kiloms. Later he made another round, so making his record for the day 999 kiloms. The next morning at 6.15 he restarted and completed eight more circuits, so that his total distance was 1,887 kiloms. His machine was fitted with a Chauviere Integrale propeller.

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CORRESPONDENCE.**Aeroplane v. Dreadnought.**

[1764] In reading the excellent article by "Major," R.A., in your number of May 31st, I cannot but agree with his sentiments. I should like, however, to question the truth of his reasoning with regard to the passing of the super-Dreadnought.

He seems to imply that torpedo fire will supersede gun fire, and states that the *effective* range of the former is definitely greater than that of the latter. By "effective" range one must mean a range when a torpedo can be relied on to hit the target aimed at, and do a damage in some proportion to its own cost; but the modern torpedo cannot be expected to hit a ship at extreme range, and is aimed only at a *line* of ships, on an even chance of hitting a ship or an interval between them. A gun, however, *must* get on to the target after two or three ranging shots, and I think will do more damage per minute per initial cost than a torpedo tube.

The idea of the big ship being unable to keep the sea needs investigation. If true, there must be a logical reason: either it will have no object, or it will not be able to carry out its object. As regards the former, its object can ever remain the same, and as regards the latter, aircraft dropping missiles and "hydroplanes" firing torpedoes are to wipe the big ship off the seas.

Now, a ship can as easily be armoured against vertical fire as horizontal, and as the weight-lifting capacity of aircraft is as limited as their accurate "firing" from a high altitude, I do not think the ship has much to fear.

But when hydroplanes are mentioned—and I hope "hydroplanes" and not "hydro-aeroplanes" are meant—the question of the death of the super-Dreadnought is outside the realms of aircraft. No doubt a craft of destroyer type, fitted with underwater planes, might develop any speed up to 4 or 5 times that of a battle cruiser, and would not give gunnery a chance even to "get it eyes in" before firing torpedoes.

If, however, "hydro-aeroplanes" were meant, I think the idea of a fast, light "airboat" being capable of carrying a torpedo or two, of say 21 ins., and being able to keep its stability after dropping them, is not quite in favour.

Portland.

"CRUISER SQUADRON."

Aeroplanes for Jockeys.

SHOULD the example of Lieut. von Egan-Kruger be extensively followed, there would seem to be some likelihood of jockeys being overworked. This officer is not only a fine rider, but also a military airman, and after winning the first race at Magdeburg on Sunday, he mounted his biplane and in an hour and a half covered the 80 miles to the Grunewald racecourse, near Berlin. There he rode in another race, and won the Potsdam gold cup.

A Fatality in Austria.

AT the Aspern aerodrome, near Vienna, on the 12th inst., the pilot Seidi, who had flown over from Wiener Neustadt, fell from a height of 50 metres while making a *vol plané*. He was terribly injured, and succumbed in a few minutes.

Cross-country Flying in Italy.

WITH his mechanic Ruggi, De Roye arrived at the Campo Marto, Florence, at 7 a.m., on the 12th inst., having flown from Rome, which he had left at 5 a.m.

Flying Home in Spain.

HAVING completed a course of instruction at the Blériot school at Pau, de Pombo Hibarra decided to return to Madrid *en aeroplano*. On the 13th inst. he started from Santander, accompanied by a passenger, and passing over the Asturias he flew by way of Burgos and Valladolid and over the Sierra de Guadarrama to the Spanish capital.

A Fatal Accident in Portugal.

WHILE making a flight on a monoplane near Lisbon, on the 13th inst., Manio, who it is understood is the same pilot who was disqualified for flying over London some months ago, fell from a height of 200 metres. Apparently the pilot was thrown out of his seat when making a too sudden turn.

The Sikorsky 'Bus in Russia.

ON the 11th inst., Sikorsky, on his giant biplane, which has four motors of 100 h.p. each, accompanied by four mechanics and the pilot Jankowsky, left the St. Petersburg Aerodrome and flew to Gatchina. After making a circuit of about 40 kiloms. in that neighbourhood, he returned to St. Petersburg, and was flying over the city for half an hour, his average speed being 90 k.p.h. During the trip the passengers changed places several times without disturbing the equilibrium of the machine.

A Long Flight in America.

A DAY or two ago, Jannus, on a Benoist flying boat, made a flight of 248 miles in four hours and a quarter flying time, not including two stops, totalling 1 hr. 41 mins., for obtaining petrol. The machine carried a passenger.

* *

Aerial Defence.

[1765] The Executive Committee of the National Aerial Defence Association at its meeting on the 4th inst. decided to take immediate steps to convene public meetings throughout Great Britain, under the auspices of the Lord Lieutenants of counties, Lord Mayors and Mayors of the chief cities and towns, with the object of educating the public of the country on the immediate needs of an adequate aerial defence policy. It was decided further that, in consultation with local organisations and with the general support of the Royal Aero Club, flying demonstrations should be organised during the summer months wherever facilities can be made available for the purpose. In the interests of the safety of pilots the Committee also took into consideration the pressing necessity of providing generous support to give effect to the recommendations of the Royal Aero Club Accidents Investigation Committee.

In order to effectively carry out this preliminary programme the Executive Committee urgently require at once a sum of not less than £10,000. An earnest appeal is therefore made to the generosity of the British public on behalf of this great national endeavour to remedy the unsatisfactory position in which this country stands with regard to its aerial defence.

Subscriptions and donations will be gratefully acknowledged by the honorary treasurer, Mr. V. Biscoe Tritton, if addressed to him at the offices of the Association, 11, Victoria Street, S.W., or they may be forwarded to Messrs. Barclay and Co., 54, Lombard Street, E.C., or any other of their branches.

BLYTH; G. W. TRUSCOTT, Trustees.

TULLIBARDINE, President, Royal Aero Club.

EDWARD BEAUCHAMP, Chairman of Lloyd's.

ROBERT YERBURGH, President of the Navy League.

R. M. RUCK, Chairman Aeronautical Society of Great Britain.

H. C. L. HOLDEN, Royal Aero Club.

LIONEL DE ROTHSCHILD.

V. BISCOE TRITTON, Honorary Treasurer.

P. J. HANNON, Honorary Secretary.

National Aerial Defence Association,
11, Victoria Street, June 14th.



Edited by V. E. JOHNSON, M.A.

Scientific Models.

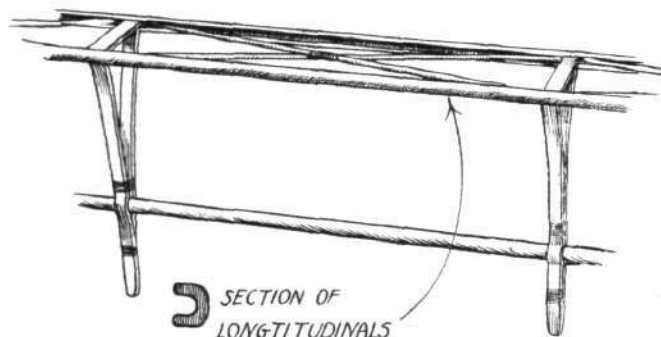
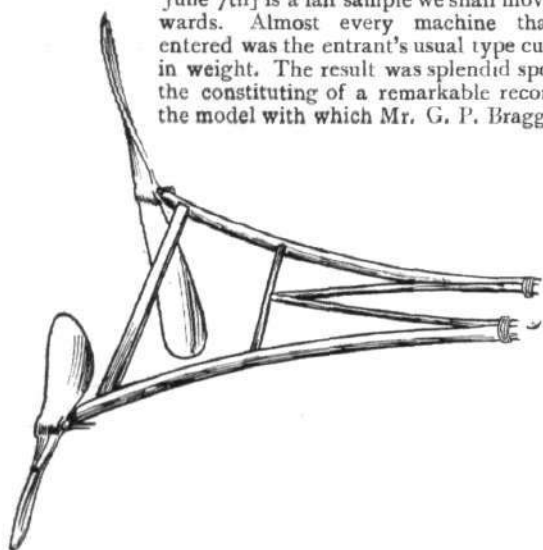
WE have received the following further communication from Mr. N. V. Brasnett (King's College, Strand): "I should like to thank you for giving my letter to Scientific Models the publicity of your columns. Perhaps I may be allowed to pursue the subject further.

"It is perfectly obvious that no sudden change from model flying, with the object of remaining in the air a second or two longer than Mr. Recordholder, to careful scientific research work is possible. Also I think it must be admitted that much scientific progress is not to be expected from the record-breaking class of flying. We are told that this year's programme of competitions will produce such progress, and certainly one or two of the contests may be helpful. But if the first [the *Model Engineer* Duration Competition,

June 7th] is a fair sample we shall move backwards. Almost every machine that was entered was the entrant's usual type cut down in weight. The result was splendid sport and the constituting of a remarkable record, but the model with which Mr. G. P. Bragg-Smith

"Probably very few would constitute it at first, but its ranks would be steadily increased by those members of the sporting side of the Association who began to tire of the mere sport. There are many who tire of the mere sport, and at present they drop it and take up something else, convinced that they have got all they can out of model aviation. If this branch could be formed all the recruits to the science would probably join the sporting side first, and later would pass over to the research side. As to the work of the proposed new branch, it would be very varied, but to show the kind of thing I mean I will give an instance.

"An unexplained accident occurs to a certain full-sized aeroplane; for instance, it turns turtle when executing a slightly banked turn. Several members then build models of this machine in proportion as regards disposition of weight, head resistance, lifting surface, &c. Each member tests his model independently, and I know from experience he would find very little difficulty in reconstructing the particular accident to be investigated several times over. It then only remains for these members to meet together and compare their observations and deductions. The formation of such a Scientific

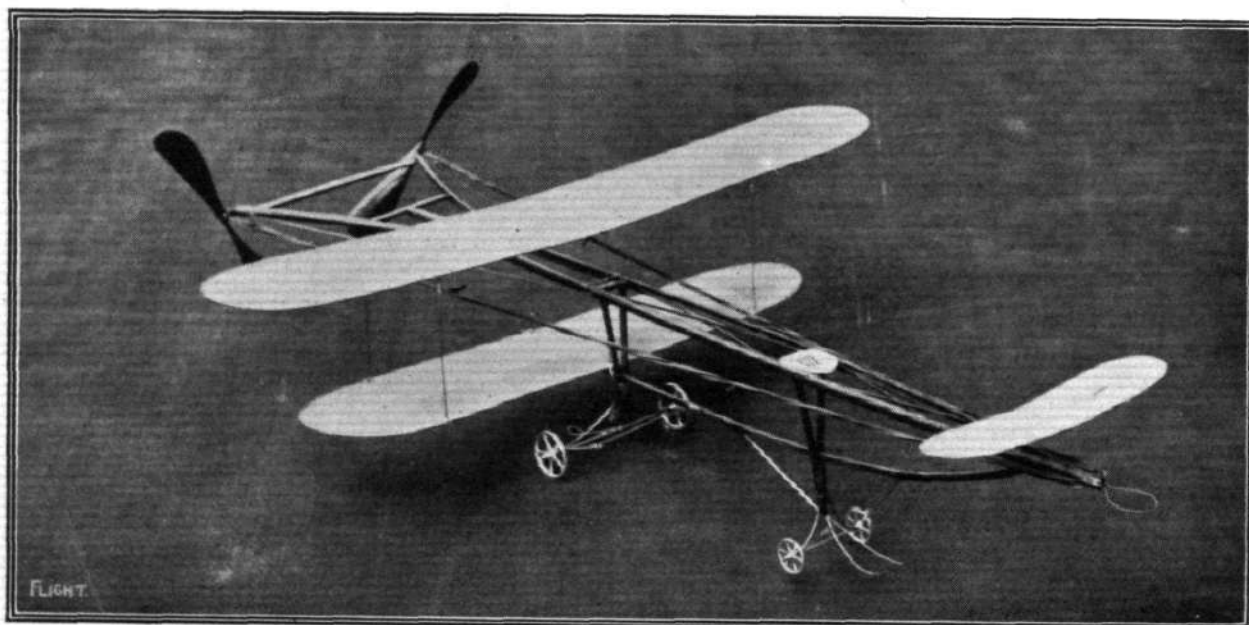


MR. F. W. JANNAWAY'S MODEL.—Sketches of the tail and fuselage construction.

won one of the earliest competitions of this character was of far more use to the science of model aviation than any one of the machines competing on June 7th. Mr. R. V. Tivy points out that such demonstrations have their use, but there must be some people who wish for something more. For such could not a Scientific Research Branch of the Kite and Model Aeroplane Association be formed?

Research Branch is the only true solution I can see to the difficulty, and I hope that there are other members of the K. and M.A.A. who would like to see it formed."

If there are others of our readers, either in the neighbourhood of London or elsewhere who hold much the same views as those expressed by Mr. Brasnett, we shall be pleased to hear from them, to put them in touch with one another, and to do anything in our

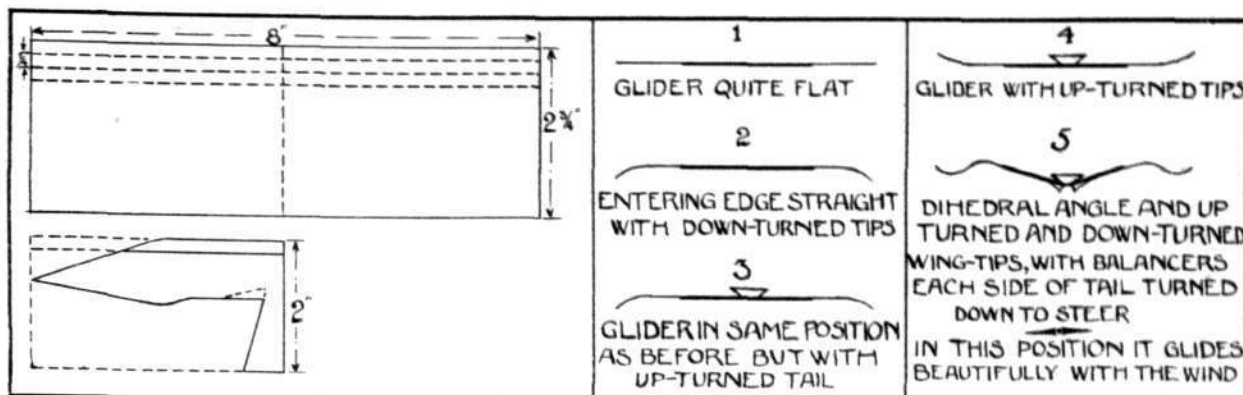


Mr. F. W. Jannaway's Olympia model.

power to further such a scheme. Some of our readers may also have something to say *re* the views expressed by our correspondent.

Mr. R. V. Tivy (Bristol Aero Club, Model Section) writes: "I am much obliged to you for giving my reply to Mr. Brasnett's [former] letter a prominent place in your columns, and also for your remarks thereon. I am inclined to think that direct investigation

(1) The gears were "overhung" instead of being supported by bearings on both sides. The gear wheels were not strong enough for more than $1\frac{1}{2}$ oz. of rubber, and were mounted on 16 S.W.G. shafts which proved much too weak. I can only recommend those who are thinking of using gears to have them made to their design by a firm which specialises in gears. Messrs. Bonn and Co.



could be made with *scale models* as gliders and fitted with electric motors. I have heard of two successful trials with electric motors, one using a flexible wire to the battery, and in the other case a flight of over 700 ft. was made with a scale model of the Bristol monoplane eighteen months ago, carrying the battery on board.

"I shall await with interest criticisms of my remarks, and will write you again about a scheme of prizes for research work which I have drafted for the committee when this has been discussed."

Referring to Mr. Tivy's statement *re* a 700 ft. flight with a scale model propelled by an electric motor, &c., we presume he is referring to a glide made from a kite, or at any rate from a high altitude, as such a motor is about the very worst possible type which one could select—even with the lightest constructed battery practically short circuited for the occasion.

Some Experiments with Paper Gliders. By JAMES MOSS.

The following is a short account of some experiments that I have made with paper gliders. I should just like, however, to state that they are not the outcome of articles which have appeared in FLIGHT, but deductions drawn from watching the gulls at London Bridge. The shape of the glider is that of a gull when gliding. At first I launched the glider flat, and found that whilst the air was calm it glided nicely, but as soon as the wind caught it, it would turn against it and rise—rocking badly all the time.

The next test was to turn the wing tips, when I found that it glided for a short distance, then suddenly sideslipped on either one wing tip or the other. This I attributed to the wing tips forming an inverted dihedral angle, *i.e.*, opening downwards.

My next test was to leave it as it was in the first case, but turn the tail up. In this position it glided a short distance, but was very quickly upset.

The next test was to turn the wing tips and tail all up, but in this position it was very rocky when gliding.

The last test was to give it a *slight* dihedral, *i.e.*, to turn the tips down and up respectively, and to cut two balancers out adjoining the tail to steer by. In this position it glided well and flat, turning against the wind (when launched with it), and, rising, glided away at a great height.

Dimensions, &c.—Take a light piece of notepaper, 8 ins. by 2.75 ins. (see diagram), and fold over one edge a quarter of an inch, three times, leaving the breadth at 2 ins. Next fold along the centre end to end, and cut out the shape shown in the sketch. To cut out the design, cut down one-third of the breadth from the leading edge to 2 ins. along the leading edge, thus cutting out an angular shaped piece. Then cut out the shape from where you began the angle, making the wing tip an inch wide, and the main wing $\frac{1}{2}$ of an inch with the overlap. The tail should be $\frac{1}{8}$ in. where it joins the body to 1.25 ins. at the base. The balancers should be cut $\frac{1}{2}$ in. wide, being the running on of the tail.

Mr. R. V. Tivy's Olympia Model.

The following are the chief particulars of the above model, illustrated in May 31st issue:—

This machine was rather a makeshift, as the "Weiss" monoplane designed for the Olympia Show was not completed in time, but will probably be shown at the Model Engineer Exhibition in October.

The dimensions were: Length 36 ins., spread (upper main plane) 36 ins., chord 6 ins., surface $3\frac{1}{2}$ sq. ft.; weight of machine 18 ozs., of rubber 2 ozs.; tractor-screw 12-in. diameter.

The machine has been abandoned without trials on account of errors in design as follows:—

have made me a geared motor with two 1-in. wheels which runs excellently with 3 ozs. of rubber. The friction in this case is negligible.

(2) I find a four-bladed 12-in. tractor (*i.e.*, two 12-in. propellers clamped together) necessary and very satisfactory on a model of this size, and a much better thrust is obtained.

(3) In the tractor biplane a "motor rod" was used, but I find that this is a great nuisance, and quite unnecessary, as the rubber can be pushed into the covered frame by means of a stick, which is withdrawn when the tail hook is fixed.

(4) The wings were covered with doped cotton instead of silk, and their weight (8 ozs.) more than counteracted any advantages which may be obtained by employing abnormally large biplane surfaces.

(5) The tail was specially designed to "camber" automatically,* when its angle of incidence was changed. Now that machines are designed to vary their speed by flying at different altitudes, the necessity for an organ of control which is efficient at more than one angle of incidence will be apparent.

There is one thing I have found with my large single screw models with geared motors, and that is that the torque when two skeins of rubber turn in opposite directions is inappreciable. Using a four-bladed 12-in. tractor and $2\frac{1}{2}$ ozs. of rubber, "3°" of ruddering will keep my "Weiss" model on an even keel and straight course. The "Weiss" rudder, being above the centre of gravity, has, of course, a "twisting" effect, which opposes the torque of the single screw.

[* It should be interesting to know exactly how this was done.]

KITE AND MODEL AEROPLANE ASSOCIATION.

Official Notices.

British Model Records.

Hand-launched	{ Distance	... R. Lucas	... 590 yards.
	{ Duration	... A. F. Houlberg	... 89 secs.
Off ground	{ Distance	... G. Rowlands	... 222 yards.
	{ Duration	... J. E. Louch	... 68 secs.
Hydro, off water	{ Distance	... F. Whitworth	... 37 secs.
Single-tractor screw,	{ Distance	... F. G. Hindsley	... 173 yards.
hand-launched	{ Duration	... J. E. Louch	... 68 secs.
Do., off ground	{ Duration	... J. E. Louch	... 45 secs.

Competitions.—On June 14th the first hydro-aeroplane competition of the season took place on the Welsh Harp water, Hendon, for the president's (Sir John Shelley) prizes. It was most successful, 19 out of 21 competitors who entered competing. The number of entries was good, considering it was open to members only. Although the weight was for models over 4 ozs. in weight, the average weight was 8 ozs., some even weighing over 16 ozs. The judges were Messrs. R. M. Balston (vice-president) and H. H. Groves, and Messrs. Doidge (Hendon club) and the hon. secretary, clerks of the course, 1st prize, £3; 2nd, £2; 3rd, £1 (presented by the president), and certificate of the association. The following were the results of the first 12 competitors (maximum marks 100):—

Place.	Competitor.	Machine.	Duration.	Marks
1	F. Whitworth	Eagle mono. 1-1-2P	44½ secs.	69
2	L. H. Slatter	1-1-2P-0	41½ "	66
3	A. C. Drew	1-1-2P-0	36½ "	60
4	P. K. Johnson	Canard-type mono.	35½ "	59
5	J. H. Dollittle	Water Gnat mono.	32 "	56
6	G. P. Bragg Smith	Bragg Smith biplane	31 "	55
7	D. A. Pavley	D.A.P. mono.	30 "	54
8	W. J. Williams	Dragon Fly mono.	25 "	48
9	N. Waghorn	Phoenix 1-1-2P-0	24 "	43
10	A. F. Houlberg	0-1-1-P2	21½ "	41
11	A. Lewis	Mann mono.	20½ "	40
12	J. McBirnie	Birmac mono.	19½ "	39

The prizes were presented by Mrs. W. H. Akehurst on behalf of Sir John Shelley, who was unable to be present. The hon. sec. read a letter from Sir John regretting his absence, and he stated that he would forward the vote of

